

The effect of knowledge management critical success factors on knowledge management effectiveness and performance: *An empirical research in Egyptian banking sector*

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Key Words

Knowledge Management Success Factors, Knowledge Management, Effectiveness, Financial, Non-financial Performance, Bank

Abstract

Research Purpose: This study identifies and discusses the critical success factors that related to the KM effectiveness within banks, which in turn influence on financial and non-financial performance of the bank. Based on existing frameworks and models, this study outlines the six most important factors that are believed to be critical for KM implementation. This paper also investigates the effect of knowledge management effectiveness on financial and non-financial performance of Egyptian banks.

Research Importance: Knowledge has become one of the most important driving forces for Banks success. Knowledge management helps Banks to find, select, organize, distribute, and transfer vital information. Through knowledge management effectiveness, banks improve their effectiveness and gain competitive advantage. The development of KM has led to the need of identifying its critical success factors.

Design and Methodology: The proposed research model is tested by self-administrated survey to 3 banks, randomly selected, in Alexandria city; from those only 35 answered the questionnaire correctly. The results of the study will help banks to understand the impact that different factors have on the KM successful implementation and how the KM effectiveness effects on financial and non-financial performance.

The research questionnaire was tested, and the results illustrate the questionnaire measures is reliable and valid whereas coefficient of Alfa is greater than 0.70. Research Hypotheses is tested by Multiple and simple regression. The main research results are: There is a significant effect of HR Practices, Leadership, IT, Strategy, process on KM effectiveness, but no effect of Culture on KM effectiveness. And there are a There are a significant effect of KM effectiveness on financial and non-financial performance but KM effectiveness effected on non-financial performance greater than financial performance.

Introduction

The essence of knowledge management is to improve organizational performance by approaching to the processes such as acquiring knowledge, converting knowledge into useful form, applying or using knowledge, protecting knowledge by intentional and systematic method, and knowledge management can be understood by innovation process of organization with individual to search for creative problem solving method. Knowledge management enables an organization to gain insight and understanding from its own experience and procedures. One of the key concerns that have emerged related to knowledge management is how to accomplish it successfully.

Thus, it is considered crucial to identify the factors that influence the success of knowledge management initiatives. Knowledge management critical success factors are the mechanism for the organization to develop its knowledge and also stimulate the creation of knowledge within the organization as well as the sharing and protection of it. They are also the necessary building blocks in the improvement of the effectiveness of activities for knowledge management. Critical success factors should be clear in an organization, because not only they create knowledge but they also prompt people to share their knowledge and experiences with others (Yeh, Lai, & Ho, 2006).

The objective of this study is to empirically investigate and test the most critical factors that influence knowledge management' effectiveness within banks, which in turn influence positively financial

and non-financial performance of banking sector. This research presents the result of a survey which was conducted in banks in Alexandria city. This research draws on existing studies, frameworks and models that have already identified the factors that potentially affect knowledge management's success and bank financial and non-financial performance.

Research Problem

In the rapid development of financial markets, commercial banks are facing with intense competition. Today, the Knowledge become the most important resources to gain superior performance .who owned the knowledge possess the market (Knowledge is power). So, there are many literatures augured the factors that affected in knowledge management effectiveness but these literatures focused on some factors not providing a whole picture that illustrate the determinate that affected on knowledge management effectiveness and how knowledge management effectiveness affected on the financial and non-financial performance.

So, we can conclude the research problem in next statement:

"What are the critical factors that affected on knowledge management effectiveness? And what is the relationship between the knowledge management effectiveness and the bank financial and non-financial performance in Egyptian bank sector?"

Research Objectives

There are two objectives:

Determine the most important success factors affected on knowledge management effectiveness.

Determine the relationship between knowledge management effectiveness and the bank financial and non-financial performance.

Literature review

Knowledge Management

Knowledge Management is an impressive, multidisciplinary, and controversial concept. Knowledge Management enables the existing individual knowledge to be captured and transformed into organizational knowledge, which in turn must be diffused and shared by many employees (Gupta et al., 2000).

Defining knowledge management is not an easy issue because it is multi-faced and controversially concept and what's more is a mix of strategies, tools, and techniques. Different authors and researchers have presented different definitions of knowledge management. Wiig (1995) proposed that Knowledge Management is a group of clearly defined process or methods used to search important knowledge among different knowledge management operations. Moreover, Jennex (2007) defined knowledge management as the practice of selectively applying knowledge from previous experiences of decision making to current and future decision-making activities with the express purpose of improving the organization's effectiveness. According to Holsapple and Joshi (2004) knowledge management is an entity's systematic and deliberate efforts to expend, cultivate, and apply available knowledge in ways that add value to the entity in the sense of positive results in accomplishing its objectives or fulfilling its purpose.

There are more than three discrete perspectives of knowledge management, each one leading to a different definition (Dalkir, 2005). From business perspective, knowledge management is a business activity with two primary aspects: Treating the knowledge components of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organization; and, making a direct connection between an organization's intellectual assets-both explicit and tacit- and positive business results (Barclay and Murray, 1997). From the cognitive perspective or knowledge science perspective, knowledge is the fundamental resource that allows us to function cleverly. Over time, considerable knowledge is also transformed to other manifestations, such as books, technology, practices, and traditions, within organizations of all kinds and in society in general. These transformations resulted in cumulated expertise and when used appropriately, increased effectiveness (Wiig, 1993). From processor technology perspective, knowledge management is the concept under which information is turned into actionable knowledge and made available in a usable form to the people who can apply it (information week, 2003). Coleman (1999) defined knowledge management as an umbrella term for wide variety of

interdependent and interlocking functions consisting of: knowledge creation, knowledge valuation and metrics, knowledge mapping and indexing, knowledge transport, storage and distribution, and knowledge sharing.

Concluding, we could say that all knowledge management beliefs and methodologies that have been developed focused on the belief that knowledge is an important asset which needs to be handled cautiously while the core of knowledge management is to get the right knowledge to the right people at the right time. Therefore, knowledge management is a process that facilitates organizations to capture, select, organize, distribute, and transfer significant information, knowledge, and expertise so as to gain business advantage.

Knowledge Management Enabler Factors

Knowledge Management is a driving force of critical importance for business success or failure. Knowledge management is a new but complex process with many factors influencing its implementation. These factors, also known as knowledge management enablers, should be clear in an organization, because not only they create knowledge but they also prompt people to share their knowledge and experiences with others (Yeh, Lai, & Ho, 2006).

KM implementation is one of the major attractions among the researchers and practitioners (Singh and Kant, 2008). While organizations try to start KM, one of the major concerns that emerge is how to accomplish it. Many companies that are attempting to initiate KM are unsure of the best approach to adopt. There seems to be general agreement in the literature that a combined social and technological approach is ideal.

So the way forward will be paved if organizations are aware of the key factors that will make its adoption successful (Wong & Aspinwall, 2005). There is a broad range of factors that are able to affect the success of KM implementation. Some researchers identify CSFs as critical areas of management planning and practices that must be addressed to achieve effectiveness. However, as Lwoga (2011) by studying nine KM models argues all these models and their related practices focus on business and organizational settings. So, in line with this discussion and according to the researches and surveys done before some of the practices which are more important will be explored in more detail as follows.

Leadership Role

The introduction of a KM program can be a major organizational change, and therefore the backing and involvement of the organization leaders is imperative. Commitment of high level executives means a better chance of higher resource allocation, and more allowance in terms of time spent on the project (Strategic Direction, 2007). Also they establish conditions in self-directed learning on individual level and organizational learning throughout the organization (Anantatmula, 2008).

Organizational Culture

Ferraro defined organizational culture as everything that people have, think, and do as members of their society. It is the basic criteria of social behavior and integrated action. Organizational cultures represent the character of an organization, which directs its employees' day-to-day working relationships and guides them on how to behave and communicate within the organization, as well as guiding how the company hierarchy is built (Tseng, 2010). Rai (2011) by literature notes that organizational culture plays a pivotal role in knowledge creation and KM in organizations because it effects how members learn, acquire, and share knowledge. Schein defined organizational culture as a set of learned responses where "basic assumptions and beliefs that are shared by members of an organization (Rai, 2011).

Trust in knowledge sharing is a fundamental aspect. Under the shadow of the trust, change acceptance and tendency to adaptation with new terms and collaboration will be come into existence. Collaborative culture is another important terms in order to happen knowledge transfer between individuals and groups because knowledge transferring requires individuals to come together to interact, change ideas and share knowledge to each other (Valmohammadi, 2010).

KM Strategy

All the academic literature agrees that for a concept to be implemented into an organization there must be a strategy, and commitment to implementation (Strategic Direction, 2007). A KM strategy should

create an understanding of the organization's knowledge resources and where they reside; articulate the role of knowledge in value creation; comprise a number of integrated projects or activities phased over time including quick wins as well as long-term benefits (Du Plessis, 2007).

Processes and Activities

Processes and activities designate a set of practices that must be done during KM implementation (Dalkir, 2005). According to Nonaka and Takeuchi a KM process can be implemented by a technology-centered strategy for explicit knowledge and by a people-centered strategy for implicit knowledge (Valmohammadi, 2010). Some of the actions that could be used to do KM processes and activities are as follows: transferring of best practices including documentation and lesson learned, identification of knowledge gaps systemically, and using well-defined processes to bring them together.

Information Technology

KM is interlinked with IT, as one seems to lead the creation of the other. It's widely accepted that databases, intranets, knowledge platforms and networks are the fundamental supporting blocks of KM. They make the recording of knowledge much easier to search for and to use (Valmohammadi, 2010). Duffy sees IT as managing the storage and access of documents. IT usually maintains the databases, hardware and software access points, survivability of information. However, any KM project can fail when IT techies see only the technical side. They must be aware and educated in KM processes to gain a better appreciation. Once this is accomplished, IT will be a major player in the companies' ongoing KM efforts (Ray, 2008). On the contrary, the lack of technology in a KM initiative makes it difficult to measure activities when the KM initiative is faced with the question about its ROI (Mohamed et al., 2006).

HR practices

Training and education

KM training and awareness workshops are essential. Training on the importance of knowledge sharing, training on the importance of KM for knowledge organizations are additional examples those companies must be done. Since KM involves the use of information system infrastructure to capture important information, training on how to use the repository is extremely critical (Valmohammadi, 2010).

Rewarding and Motivation

All KM programs involve change and in order to provoke change individuals must be motivated sufficiently to be willing to suffer the stress of the change process to find benefit and subsequent commitment. These items can be categorized in four titles namely social rewards, financial rewards, further security, and further opportunity/risk as motivator tools. Of course in a comprehensive view, in order to motivate individuals we can use new strategies such as quality of work life that improve organizational behavior of members (Salmani, 2005). Based on another view, the reward and incentive system of KM should consist of push and pull rewards, e.g. rewarding people as part of their performance appraisals according to participation in the program (push) and incentivizing people to use the knowledge base to provide a platform for their innovative ideas i.e., providing them and their ideas with visibility in the organization (pull) (Du Plessis, 2007).

Knowledge Management effectiveness

Most research papers have lengthy elaborations on definitions of knowledge. Two prime categories of knowledge are widely discussed, i.e. tacit (codified) knowledge and explicit (uncodified) knowledge. It is also generally agreed that managing knowledge is not only about information technology, but also managing people and processes.

Knowledge management is about managing both explicit and tacit knowledge and using information technology to facilitate the processes of knowledge identification, acquisition, codification, storage, retrieval, sharing, dissemination, and creation, etc. The process-based view captures the basic motions largely supported by information technology, but overlooks the fundamentals that enable these processes. One of such fundamental factors is a learning culture, which has been addressed by authors such as Davenport et al (1998), O'Dell et al (1999) and Ahmed (2001), using either case-based evidence or theoretical insights.

From the above insights on knowledge management contingencies and contexts together with those of many other authors such as Gold et al. (2001), Gupta and Govindarajan (2000) and McDermott and O'Dell (2001) emerge five key aspects of knowledge management. They are the knowledge system, organization memory, knowledge sharing, a learning culture and knowledge benchmarking, which are further elaborated in the following sections.

Organizational Performance and Measurement

Enhancing organizational performance is the focus of every manager in every enterprise. In order to succeed at enhancing organizational performance, it is crucial for an organization to establish a comprehensive measurement index that provides managers and staff with clear directions and goals set by the enterprise (Tseng & Lee, 2014).

For all organizations the question of the management of the organization depends on the ability to measure performance and then evaluate and report upon that performance (Crowther and Aras, 2008). Therefore, performance measurement systems are required to make the benefits and the performance of KM initiatives transparent.

Research Methodology

Population and Sampling

There are many decisions in sampling; research population, sample, sample unit, unit of analysis and research limitations. The research population is a set of banks that operating in Egypt, regardless of the field of activity. Whether commercial banks or investment banks or specialized banks, and also regardless Egyptian banks or foreign banks operating in Egypt.

The sampling frame of this research is a list of 40 banks operating in Egypt according to the Egyptian Central Bank report in 2016. The sample type for research is simple random sample, we choice randomly 50 of bank employees to answer on research questionnaire from 3 banks located in Alexandria city in Egypt. The sampling unit is the commercial bank but the unit of analysis is staff of the bank. This research applied on commercial banks branches located in Alexandria Province during year 2016 and not consider Islamic Bank, Industrial bank.

Data Collection Method

The data collection method of research is survey by using self-administrated questionnaire. We use Likert five categories scale (strongly agree, agree, neither nor, disagree and strongly disagree) to measure employees responses about research variables. Depend on measures both of (Kuan & Elaine, 2005; Wang & Pervaiz, 2004). Response rate is 0.70 (35 completed questionnaire from 50).

Research Hypotheses

The research hypotheses could be stated as follows:

- H₁: The Leadership has a positive effect on Knowledge Management Effectiveness.
- H₂: The Organizational Culture has a positive effect on Knowledge Management Effectiveness.
- H₃: The Information Technology has a positive effect on Knowledge Management Effectiveness.
- H₄: The organizational Strategy has a positive effect on Knowledge Management Effectiveness.
- H₅: The Process has a positive effect on Knowledge Management Effectiveness.
- H₆: The HR Practices have a positive effect on Knowledge Management Effectiveness.
- H₇: Knowledge Management Effectiveness is positive effect on financial performance of the bank.
- H₈: Knowledge Management Effectiveness is positive effect on Non- Financial performance of the bank.

Research Framework

A theoretical framework is presented in figure 1 below describing the key factors that contribute to an effective knowledge management implementation and finally to the firm financial and non-financial performance:

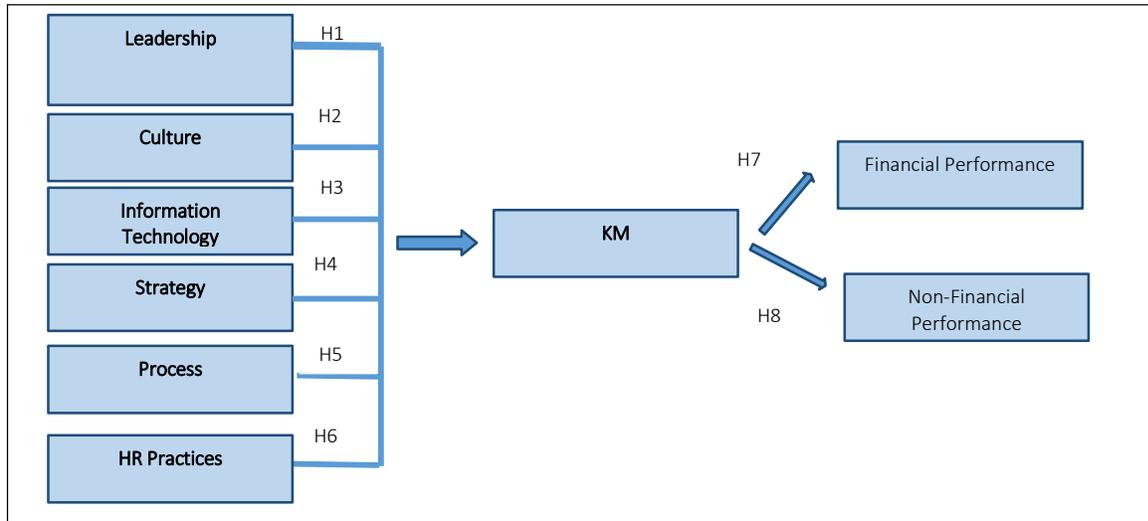


Figure (1): Research Framework

Data Analysis

Validity and Reliability of Measurements

Reliability

To estimate the measurements reliability we will find the Cronbach Alfa (Coefficient of Alfa) by using SPSS version 22 program. If Alfa (α) is more than or equal 0.60 for each measurement, then the measurement will be reliable.

Validity

It is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. The validity of a measurement tool is considered to be the degree to which the tool measures what it claims to measure. Statistically by using SPSS version 22, we can measure convergent validity by using factor analysis and find both the total variance explained (VE) and factor loading for each variable. If VE more than or equal 0.50 and factor loading for each variable more than or equal 0.60, the measurement of variable will have convergent validity, but if the coefficient of relationship between any two variables more than or equal the root square of its correlation variables, the measurements of tow variables will have Discriminant validity. The next table illustrates the reliability and validity results.

Table (2) Reliability and Validity results

Variable	Code	Factor loading	AVE	
Non- Financial Performance	NF1	0.87	56.43	72%
	NF2	0.75		
	NF3	0.64		
	NF4	0.72		
	NF5	0.82		
	NF6	0.63		
	NF7	0.72		
	NF8	0.65		
	NF9	0.54		
	NF10	0.65		
	NF11	0.78		
	NF12	0.56		
	NF13	0.64		
	NF14	0.78		
	NF15	0.62		
	NF16	0.81		

Variable	Code	Factor loading	AVE	
Financial performance	F1	0.73	62.64	85%
	F2	0.62		
	F3	0.56		
	F4	0.54		
	F5	0.87		
	F6	0.53		
km effectiveness	K1	0.55	61.49	91%
	K2	0.76		
	K3	0.57		
	K4	0.96		
	K5	0.76		
	K6	0.67		
	K7	0.62		
	K8	0.52		
	K9	0.54		
	K10	0.42		
	K11	0.37		
	K12	0.65		
	K13	0.40		
	K14	0.65		
	K15	0.50		
	K16	0.65		
	K17	0.54		
	K18	0.74		
Leadership	LE1	0.56	50.92	%80
	LE2	0.67		
	LE3	0.74		
	LE4	0.75		
	LE5	0.61		
	LE6	0.71		
	LE7	0.56		
Culture	CU1	0.54	55.31	77%
	CU2	0.76		
	CU3	0.45		
	CU4	0.62		
	CU5	0.72		
	CU6	0.65		
	CU7	0.53		
	CU8	0.65		
Information Technology	IT1	0.61	53.8	%77
	IT2	0.63		
	IT3	0.60		
	IT4	0.65		
	IT5	0.76		
	IT6	0.53		
		0.49		

Variable	Code	Factor loading	AVE	
Strategy	S1	0.66	62.60	87%
	S2	0.52		
	S3	0.76		
	S4	0.54		
	S5	0.86		
	S6	0.53		
Process	PO1	0.69	55.73	79 %
	PO2	0.53		
	PO3	0.76		
	PO4	0.82		
	PO5	0.54		

According to the results, the measures are reliable because α is more than 0.60; and also, the measures valid because the AVE more than 0.50 and the factor loading is more than 0.6.

Hypothesis Test

To test hypothesis, we use simple linear regression (by SPSS version 22) between X and Y. If R^2 is significant (p -value $<$ or $=$ 0.05 or by using f -test the calculated $F >$ tabled F), there are effect from (for example, Information technology (X) on customer relationships management effectiveness (Y)).

R^2 is a determination factor which the variable X illustrate the percentage of explanation from variation of variable Y. and R^2 determine which the Model is valid or not; but we use T-test to determine if the correlation (β) between X and Y is significant or not. Whereas simple linear regression is the least squares estimator of a linear regression model with a single explanatory variable. In other words, simple linear regression fits a straight line through the set of n points in such a way that makes the sum of squared residuals of the model (that is, vertical distances between the points of the data set and the fitted line) as small as possible.

We accept the research hypothesis when the model fit indexes (R^2 and β) is significant (p -value $<$ = 0.05) but reject accept the research hypothesis when the model fit indexes (R^2 and β) is significant (p -value $>$ 0.05)

The first six hypotheses are tested by multiple-regression analysis. Table 2 illustrates the results of analysis. The model R^2 is 0.814. This means that the CSFs interpret the 0.814 from the variance of KM effectiveness and p -value of the model is $<$ 0.05.

It was found that there is a positive effect between Leadership and Knowledge Management Effectiveness, whereas ($\beta=0.525$ and t -value = 3.957 with P -value= 0.0001). So, we accept H_1 . Also, there is no effect between Culture and Knowledge Management Effectiveness, whereas ($\beta=0.253$ and t value = 1.723 with P -value= 0.096. So, we reject H_2 . In addition, there is a positive effect between IT and Knowledge Management Effectiveness, whereas ($\beta=0.393$ and t value = 3.285 with P -value= 0.003. So, we accept H_3 . Besides, there is a positive effect between organizational Strategy and Knowledge Management Effectiveness, whereas ($\beta=0.044$ and t -value = 2.338 with P -value= 0.038). So, we accept H_4 . Moreover, there is a positive effect between Process and Knowledge Management Effectiveness, whereas ($\beta=0.331$ and t -value=2.153 with P -value=0.040). So, we accept H_5 . Finally, there is a positive effect between organizational Strategy and Knowledge Management Effectiveness, whereas ($\beta=0.542$ and t -value=2.231 with P -value=0.021). So, we accept H_6 .

Table (2): Regression Analysis of Knowledge Management Enabler Factors on Knowledge Management Effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²
	B	Std. Error	Beta			
1 (Constant)	.489	.359		2.361	.084	
x1	.525	.133	.576	3.957	.000	.814
x2	.253	.147	.236	1.723	.096	
x3	.393	.120	.470	3.285	.003	
x4	.044	.129	.045	2.338	.038	
x5	.331	.154	.364	2.153	.040	
x6	.542	.156	.532	2.231	.021	

A simple regression is used to test H₇ Hypotheses. According to table (3), there is a positive effect between Knowledge Management Effectiveness and Financial Performance, whereas ($\beta=0.466$ and $t\text{-value}=3.876$ with $P\text{-value}=0.000$). So, we accept H₇.

Table (3): Regression Analysis of Knowledge Management Effectiveness and Financial Performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²
	B	Std. Error	Beta			
1 (Constant)	2.163	.448		4.829	.000	.313
X7	.466	.120	.559	3.876	.000	

A simple regression is used to test H₈ Hypotheses. According to table (4), there is a positive effect between Knowledge Management Effectiveness and non-financial performance, whereas ($\beta=0.546$ and $t\text{-value}=3.481$ with $P\text{-value}=0.000$). So, we accept H₈.

Table (4): Regression Analysis of Knowledge Management Effectiveness and Non-financial Performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²
	B	Std. Error	Beta			
1 (Constant)	3.262	.564		5.254	.000	.684
X8	.546	.342	.435	3.481	.000	

Descriptive Statistics

Descriptive statistics is the discipline of quantitatively describing the main features of a collection of information, or the quantitative description itself. Sample units are 20 male and 15 female, the most of employees have higher studies qualifications. The most of employees are working at operational level .the average of numbers of working years in the bank is 8.5 years.

Conclusion and Recommendation

According to the research results we can conclude that the leadership, Information technology, process, and HR practices are the most CSFs affecting on the KM effectiveness. KM is more related to Learning and growth financial and non-financial performance. The culture is not related to KM. Knowledge Management Critical Success Factors are positive effect on Knowledge Management Effectiveness. Knowledge Management Effectiveness is positive effect on financial and non-financial performance of the bank. So, we can conclude that the HR Practices, leadership, process and strategy are determined the KM effectiveness; and these factors more related to non-financial about financial performance.

The decision makers in Egyptian bank sector must improve the success factors that affect on knowledge management effectiveness, such as; leadership, IT, strategy, processes, HR Practices, as well as the learning and growth performance and process performance are ore related to KM effectiveness.

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