International Journal of Economics & Management Sciences

Asiedu, Int J Econ Manag Sci 2015, 4:7
DOI: 10.4172/2162-6359.1000267

Research Article Open Access

A Critical Review on the Various Factors that Influence Successful Implementation of Knowledge Management Projects within Organizations

Elvis Asiedu*

Servicio Nacional de Aprendizaje (SENA) Neiva,CL 49A KR 5 A31, Santa Monica, Huila, Colombia

Abstract

Knowledge Management (KM) is currently one of the hottest concepts in all industries. Driven by pressures such as increased competition, the need for innovation, need to improve quality of products and services and availability of new and effective information management tools, firms are increasingly investing in technology and humans with the aim of leveraging intellectual assets. Numerous scholars have shown that knowledge is an important resource to a firm as it contributes to successful organizational performance if well managed. This paper critically explores the various factors that influence successful implementation of knowledge management projects within organizations. A review of literature on the factors that influence success and failure of Knowledge Management Systems (KMS) implementation projects is conducted. This is followed by a summary of the crucial managerial and technological factors that support a successful performance of KMS implementation project.

To understand this issue better, the paper derives qualitative data on National Thermal Power Corporation (NTPC) related to the subject matter. NTPC is an Indian power generation company and it is one example of firms that have implemented KMS recently. Content analysis is applied on the data and a detailed outline of the implementation approach undertaken by this company is given. The challenges encountered during the process, the technology adopted and the benefits derived from the project are also examined. The analysis of this company finds that the KMS project has encountered numerous challenges and some of the challenges have come from failure to incorporate some of the crucial factors in the implementation process such as the use of motivational aids. Organizations need to incorporate all crucial factors during implementation process and to find strategies to overcome the challenges in order to increase value of the project.

Keywords: Knowledge management; Knowledge management systems; Knowledge resources; Information systems; Information technology

Introduction

With the rapidly changing business world, organizations are finding it necessary to leverage on KM in a way that any new knowledge is shared across the organization and stored for future use. The concept has gained prominence since the mid-1990s following the work of Peter Drucker. Knowledge is being viewed as a key resource in business for economic growth by developing a competitive edge. Fernandez and Sabherwal [1] defined KM as doing what is needed to get the most out of knowledge resources. KM involves enhancing knowledge creation and sharing it within organization and leveraging it to achieve business goals.

Drive towards knowledge management is being influenced by a variety of factors that include; increasing knowledge domain complexity and fragmentation; accelerating market volatility; intensified speed of responses; increased employee turnover; globalization of businesses; business process reengineering and complex organizational interlacing among others [1,2]. To enhance creation, sharing and application of knowledge, organizations are increasingly developing KMS.

Although many studies raise the issue of how KM is leveraged in organizations and its contributions to performance, few investigate on the various factors that influence successful implementation of KM projects in organizations. Within this discussion, various issues in KM and KMS information have been critically evaluated in detail. These includes; empirical studies from peer-reviewed publications on causes of successes and failures of KMS project to deliver the value promised; factors crucial to designing a successful KMS and case study review of NTPC. Key conclusion and recommendation are made at the end of this discussion.

Purpose of study

The purpose of the research is to investigate on how knowledge management is leveraged in organizations and the various factors that influence successful implementation of KM projects within organizations.

Research objectives

In order to achieve the above purpose of the research, the following objectives were set aside to deal with;

- To explore the various factors that ensures the success implementation of KM project in organizations.
- To verify the challenges and difficulties of implementing KM projects in organizations.
- To devise a strategy for introducing or modifying KMS in organizations.

Literature Review

Numerous scholars have given attention to the factors contributing to the effectiveness of KM implementation process. Kulkarni et al. [3], developed a KM success model that gives one of the most comprehensive assessment on the subject matter. In a study comprising of 10 companies, Kulkarni et al. [3] established seven key factors that affect successful implementation of KM system namely; the degree of fit

***Corresponding author:** Elvis Asiedu, Servicio Nacional de Aprendizaje (SENA) Neiva, CL 49A KR 5 A31, Santa Monica, Huila, Colombia, Tel: +57 310 279 01; E-mail: akwasiasiedu63@yahoo.com

Received May 06, 2015; **Accepted** June 16, 2015; **Published** June 26, 2015

Citation: Asiedu E (2015) A Critical Review on the Various Factors that Influence Successful Implementation of Knowledge Management Projects within Organizations. Int J Econ Manag Sci 4: 267. doi:10.4172/21626359.1000267

of KM framework into organizational culture; the strength of the KM foundation; level of acceptance by staff; level of fit with organizational information technology infrastructure; level of training deployed on staff related to new knowledge artifacts; availability of resources to support the process; and the extent of support from management.

Changzheng [4], on the other hand developed a five-factor model on the subject matter and proposed that technical factors and managerial factors such as motivation, coordination, measurement and monitoring are the key drivers to the successful implementation of KMS. Both of the above studies acknowledged that failure to uphold the proposed factors only leads to failure of KM project.

Contrary to the above assessments, Wen [5] developed a framework representing the existing relationships among knowledge, data, information and wisdom within an organization, with the aim of understanding the factors that contribute to the effectiveness of a KMS. According to Wen [5], knowledge, information and data contribute to the effectiveness of regular affairs of an organization. On the other hand, wisdom is essential to an organization when irregular affairs emerge since it assists in developing appropriate actions in response to a changing environment. Thus, Wen [5] argued that KM encourages individuals within an organization to manage and utilize knowledge effectively while working.

Wen [5] came up with a knowledge management assessment tool to evaluate the effectiveness of KM system projects. The proposed tool comprised of five main elements: KM process, technology, strategy and leadership and culture. The tool was composed of four success factors: persons involved in knowledge management process, procedures of implementing KM adopted, information technology adopted during the implementation of KM system and the level of support of organizational overall structure for KM project. Though this argument has been criticized as lacking concrete standard, it contributes immensely to the understanding about the factors that contribute to the effectiveness of KMS.

Chun-Ming et al. [6] assessed the factors affecting the success of KMS in an aerospace manufacturing firm. The author took a different root from the above scholars by developing a model for assessing the impact of the fit between KM capabilities (network capability and codification capability) and KM processes (socialization, internalization, externalization and combination) on the successful implementation of KMS. The results of the study indicated that a fit between the two elements enhances knowledge creativity, knowledge quality and knowledge satisfaction and hence, contributes to the successful implementation of KMS. Evidently, this model focuses more on cultural fitness and does not give attention to effects of poor fit.

Another KM assessment model developed by Kazemi and Allahyari [7] proposed eight major factors that contribute to successful implementation of KM namely: worker's motivation; extent of support from leadership; extent of fit with technology adopted by an organization; acceptability by other stakeholders such as shareholders customers; suppliers and surrounding community; the extent of fit to organizational culture; level knowledge and skills by workers and leaders and conformity between old and new systems.

Kazemi and Allahyari [7] therefore argued that the failure for KM system implementation process arises from lack of expertise by management in regard to the dimensions of KM, failure to select proper team members, improper planning and forecasting, poor fit with organizational culture and technology, resistant to change and lack of conformity between the old and the new KMS.

Research Methodology

In an attempt to investigate the various factors that influence successful implementation of KM projects within organizations, the works of eight (8) prominent authors who are highly involved in KM research and practice were consulted. The eight (8) renowned Authors maintain the roles as Professors, Doctors. and Conultants of institutions and organizations of varying sizes dealing with KM implementation issues. The Table 1 shows the names and the books of these celebrated authors in the field of KM.

The researcher besides the above books, consulted variety of books, journals, and articles. National and international data searches at Oxford City-Centre Library-Oxford-UK, BPP Library-London, Oxford University Library-Oxford, Oxford Brookes Library and relevant abstracts and indexes were also consulted. Using a case study method, the paper derives qualitative data on National Thermal Power Corporation (NTPC) related to the subject matter. NTPC is an Indian power generation company and it is one example of firms that have implemented KMS recently.

The Crucial factors to the designing of KMS

There are several factors that are crucial to the process of implementation of KMS, as established in the literature review section. Most of the theoretical models and frameworks examined highlighted the importance of designing KMS in a manner that integrates humans and technology in the whole process [3-7]. During the implementation process, the management is tasked with the process of developing a supportive culture.

Figure 1 suggest the strategies that managers/leaders can adopt to ensure successful implementation of KM projects. As Chun-Ming et al. [6] explains, this can be achieved through designing the project in a way that supports the interests of the key stakeholders such as employees,

Name of Authors	Book Title
Alok et al. [8]	"Knowledge management implementation in NTPC": an Indian PSU", Management Decision; Vol. 48
Changzheng [4]	"A four-factor model on the success of knowledgemanagement." International. Conference on Networking and Digital Society, Vol. 1
Chun-Ming et al. [6]	"Factors affecting knowledge management success: the fit perspective", Journal of Knowledge Management, Vol. 16.
Fernandez and Sabherwal [1]	Knowledge Management Systems and Processes. New York: M.E. Sharpe Inc.
Kazemi and Allahyari [7]	"Defining a knowledgemanagement conceptual model by using MADM" Journal of Knowledge Management. Volume 14
Kulkarni et al. [3]	"A Knowledge Management Success Model: Theoretical Development and Empirical Validation." Journal of Management Information. Volume 23.
Maier [2]	Knowledge Management Systems: Information and Communication Technologies for Knowledge Management. 2nd Ed. New York: Springer-Verlag
Wen [5]	"An effectiveness measurement model for knowledge management." Knowledge-Based Systems. Vol. 22

Table 1: A list of Key Authors in the field of Knowledge Management.

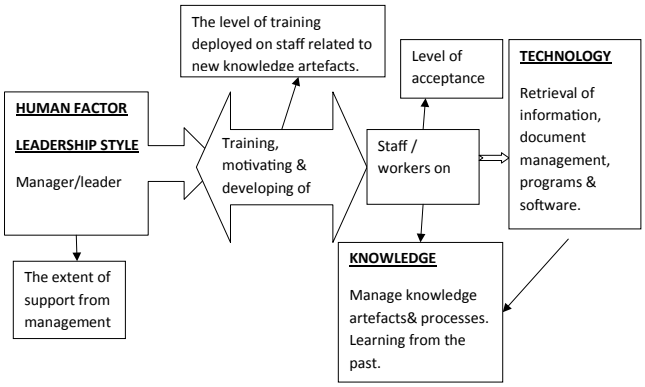

Figure 1: A suggested framework to guide managers to ensure successful implementation of KM project.

management and shareholders. If different groups of stakeholders share the same interest, the quality of knowledge artifacts should be consistent. If they have different interests, the objectives of the project should address the different groups of stakeholders separately and satisfy their interests. This can be achieved through collecting the views of the key stakeholders and then incorporating them when designing KM implementation plan. This will ensure that the project derives enough support from the management and other stakeholders and also eliminate the possibility of rejection.

Secondly, the management has a role of developing appropriate organizational infrastructure to conduct the implementation of the project [3]. Cautiousness should be exercised to ensure that the implementation team is comprised of knowledgeable and skilled individuals to handle the task.

Additionally, the management should ensure that KM implementation project is supplied with enough resources to support successful implementation [3]. Financial resources are needed to support any new investment in technology and to compensate persons allocated the role of implementation of the project.

Besides, the management should act as role model and advise the rest of stakeholders about the importance of the project. The management should also encourage workers by offering them motivational aids. Incentives or rewards to motivate the employees should be focused on criteria such as teamwork, innovation solutions, creativity and knowledge sharing and contribution [3].

The employees need to be given free time to conduct KM activities. The management has an additional role of ensuring that employees are provided with appropriate training and skills about new knowledge artifacts. During recruitment of employees into an organization, the management is charged with the role of ensuring that candidates with desired knowledge to fill gaps are given the first consideration.

As Kazemi and Allahyari [7] explains, information technology is one of the key enablers for the implementation process of KMS. A few centuries ago, information technology used to be a static archive of information. However, it has evolved to become a connector of one human to another and of a human to information. Today, it enables quick search, access and retrieval of data and can support effective communication and corroboration among members of an organization. Generally, it can play numerous roles in support of KMS implementation process.

According to Kazemi and Allahyari [7], information technologies that support KM can be grouped into the following categories; knowledge base, business intelligence, collaboration, portals, content and document management, customer relationship management, workflow, data mining, search, and e-learning. During implementation of KM, there is a need to give consideration to needs such as suitability of the needs of users, knowledge structure standardization, ease of use, knowledge content relevancy and simplicity of technology.

NTPC case study

NTPC is the largest Indian power generation company and one of the largest and most efficient power companies in the world. Established in 1975, this company has diversified into power, equipment manufacturing, hydropower, power trading and distribution, coal mining and oil and gas exploration [8].

In 2004, this company conducted an assessment of its knowledge management system, in consultation with AT Kearney Company. Based on the results of the assessment and the recommendations made, NTPC decided to implement a new and relatively more effective knowledge management system. The implementation project was initiated in 2007 and has been going on over the years. Apart from the need to improve the effectiveness of the previous KMS, the change was also driven by the company's vision of becoming a learning organization.

While designing the new system, NTPC made consideration of the key human and technological factors [8]. Behavioral values and contributions of the users, organizational structures and incentives for contributors and users were all put into consideration. The company also gave consideration of critical issues such as characteristics of relevant knowledge, knowledge process that would enable the company to gain value and competitive advantage, the most appropriate mechanisms to develop and apply relevant knowledge and the organization needs that would need to be taken into account in order for the mechanisms to work. This was followed by a pilot study and development of change management program in the company.

According to Alok et al. [8], this step was aimed at transferring individual learning into organizational learning. After the pilot study became successful and the change management process was underway, the company embarked on full implementation of the project. Alok et al.[8] maintains that, the implementation process started with the appointment of domain leaders. Knowledge domains were developed based on specific criteria. This was followed by identification and appointment of affinity groups members in different segments of the company to assist the domain leaders in archiving and updating knowledge base. The affinity groups were supplied with documents and electronic instruments to capture knowledge in their respective domains. The affinity groups capture knowledge from all locations and submit it to domain leaders.

Knowledge is then classified into categories. Domain leaders approve the uploaded information which is then compiled into knowledge documents. The knowledge documents are then placed at all locations for users to download.

Discussions and Findings

Discussion no 1: The challenges the NTPC faced while introducing the KMS

NTPC has encountered numerous challenges in the process of implementing KMS. One of the causes of the difficulties encountered

is that knowledge sources in this company exist in any forms and are widely distributed. There was a need for incorporation of a common interface that would allow access to the different types of knowledge [8].

Secondly, the system sometimes fails to capture learning and experiences. This leads the domain leaders to refer to past documents for experiences, making the process cumbersome. The system did not capture tacit information residing within an individual.

Additionally, the project failed to capture the experiences derived from dealings with various stakeholders such as government and non-governmental organizations. According to Alok et al.[8], there is often an inadequate communication across levels, functions and geographies, which limit the process of updating knowledge.

Another challenge is the lack of a formal process for knowledge codification and classification, leading to difficulties in the process of knowledge retrieval. During the initial stages of the project, there lacked enough documented past knowledge to be used in development of guidelines and methodologies for work efficiency improvement.

According to Alok et al. [8] conversion of available past documents from soft to hard formats was a hard task. The available IT systems were slow in retrieving information across levels, functions and geographies. The established processes for creating awareness about knowledge base across levels, geograghies and functions were weak. The company did not provide any motivational aids to employees for their contributions to KM Individuals.

Finally, some past documents such as project reports and proposal are stored manually and hence, they are hardly shared across levels, geographies and functions.

Discussion no 2: The technology used in support of the design

NTPC adopted KM technologies to support the process of knowledge sharing. An integrated portal named 'Lakshya' was developed to facilitate knowledge sharing and reuse. According to Alok et al. [8], the portal organizes information gathered by type and topic and provides access for all knowledge sources. A user of the portal is able to access available knowledge sources by searching from a list of knowledge sources grouped by type or topic.

The portal obtains the request of the user loads the appropriate software and data and displays the requested knowledge. The portal can also be used as a knowledge management planning tool by locating expertise and information for future knowledge efforts. Finally, the portal acts as an inventory for knowledge that is accessible by users from specific domains anytime.

Discussion no 3: Benefits/Success of the project

Though NTPC's KMS encountered numerous difficulties from the initial point, it was finding that it has several benefits. One of the benefits is improvement in culture of knowledge sharing within the company, hence transforming it into a learning organization.

Secondly, trust and openness were developed among individuals within the company. Individuals are able to access knowledge and experience with ease.

Level of efficiency has increased: more time is spent by employees on analyzing information rather than searching. According to Alok et al. [8], the company has so far recorded a reduction in the lead time in day-to-day activities and business processes.

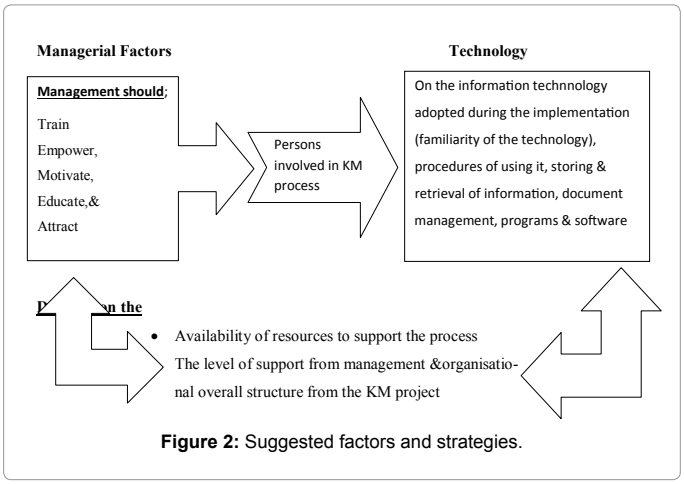

Figure 2: Suggested factors and strategies.

Furthermore, there has been a cost reduction as a result of improved practices across plants. Finally, the system has helped to open new revenue enhancement opportunities.

Conclusions and Recommendations

In conclusion, KM is essential for firms if they are to maintain competitiveness in their respective industries and markets. Lack of KMS within a firm may leave some major knowledge gaps, exposing the future performance of the firm to risk. This discussion examined various factors that influence successful implementation of KM projects within organizations. All the Models and frameworks examine from the previous literature of the subject matter highlighted the importance of technological and human factors.

As noted, failure to give consideration to the factors examined will result in project failure. The case of NTPC is a good example of a recent KM implementation project. The implementation process of this project largely incorporated technological and human factors. However, as noticed in the challenges facing the project, some of the crucial human factors such as offering motivational aids to employees are ignored. Based on the assessment models examined earlier, the performance of this project is currently can be termed as average.

Generally, Organizations need to incorporate all crucial technological and human factors into the implementation process in order to attain maximum value. Managers also need to come up with strategies to minimize the challenges as much as possible in order to ensure that the project bears more fruits in the future. The Figure 2 suggest the factors and strategies to ensure KM implementation success.

References

1. Fernandez IB, Sabherwal R (2010) Knowledge Management Systems and Processes. M.E. Sharpe Inc., New York, USA.
2. Maier R (2004) Knowledge Management Systems: Information and Communication Technologies for Knowledge Management. Springer-Verlag, New York, USA.
3. Kulkarni UR, Ravindran S, Freeze R (2007) A Knowledge Management Success Model: Theoretical Development and Empirical Validation. Journal of Management Information 23: 309-347.
4. Changzheng Z (2010) A four-factor model on the success of knowledge management.International. Networking and Digital Society 1: 349-352.

5. Wen Y (2009) An effectiveness measurement model for knowledge management. Knowledge-Based Systems 22: 363-367.
6. Chang CM, Hsu MH, Yen CH (2012) Factors affecting knowledge management success: the fit perspective. Journal of Knowledge Management 16: 847-861.
7. KazemiM, Allahyari MZ (2010)Defining a knowledge management conceptual model by using MADM. Journal of Knowledge Management 14: 872-890.
8. Goel AK, Sharma GR, Rastogi R (2010) Knowledge management implementation in NTPC: an Indian PSU. Management Decision 48: 383-395.