The Impact of Project Businesses' Critical Success Factors on Successful Knowledge Management

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Abstract: The aim of this paper is to shed some light on how such factors could help build a strong knowledge management system base through exploring the previous research on the subject and comparing different practical cases. Project business support knowledge management departments through number of critical success factors. The significance of strategy formulation, presence of an appropriate and encouraging cultural environment, knowledge sharing and creation, innovation and other factors are extensively covered in previous academic research and practical studies. Despite of this extensive research and useful findings, there is not enough studies that explore proper linkages between technological advancements and the decision making process and the need for expanding the role of knowledge management departments in terms of investing in IT assets. In addition, the previous literature on the subject lacks studies about rationalizing the use of knowledge tools and how such rationalization be supportive of knowledge management departments in some way or another.

1. Introduction

The prevalence of cooperation and project-based work is increasing throughout the world in recent times. Likewise, the knowledge-intensity of work contents is growing rapidly given the accelerating progress of technological advances and innovations. Information and knowledge are important strategic assets to any organization. Knowledge management is thus crucial for the strategic use of information and knowledge resources to an organization's best competitive advantage. Knowledge management leverage knowledge internally in the organization within its employees, structures and systems as well as externally to customers and stakeholders. Through implementation of successful Critical Success Factors (CSFs), knowledge management departments within their organizations will be able to make critical decisions and allocate resources that are required to achieve the company's overall objectives. In addition, the temporary nature of projects businesses urgently requires employing useful knowledge management programs and practices for looking over different matters, such as knowledge leakiness and rework.

Successful project business enable IT to play a vital role through knowledge management departments, by providing necessary access to data and information concerning the relative projects, and allowing the top management to perform in-depth analyses and to make better decisions.

Furthermore, the recent observable trend towards depending on knowledge transfer forms is gaining momentum and the need to examine the CSFs used in business projects on knowledge management became more urgent than ever. But assessing the impact of CSFs on knowledge management departments should be done with full awareness of the influence of cultural, organizational, structural, and process-related factors on knowledge management procedures and overall effectiveness. Indeed, CSFs, if implemented properly, relevantly and timely, will eventually support organizations' goals and advantages through an appropriate design and implementation of sound knowledge management initiative. They also ensure performance effectiveness.

2. Objectives of the study

CSFs for design and implementing an effective knowledge management system in a multi-case study research have not been systematically evaluated and presented accordingly. Many of the current research also focus on specific industries such as banking and finance industries and explore the impact from a limited perspective related only to such industries and industries related to them. In addition, many of the studies did not consider all factors in an integrated way.

The aim of this paper is to shed some light on how such factors could help build a strong knowledge management system base through exploring the previous research on the subject and comparing different practical cases.

3. Literature Review

Project businesses in different fields could help enhance the work of knowledge management departments and strengthen main tasks of such departments such as knowledge creation and sharing. The involvement of project businesses with other entities during the phases of project implementations help in knowledge sharing and transfer. It also opens the windows for exploring new ideas and innovation. Timely planned project businesses helps knowledge management for building scientific models for future planning and forecasting. They also help knowledge management departments in attracting necessary qualifications and skills for better performance and outputs. In short, the relevant organization needs to become a focal center of stakeholders' knowledge integration. (Yeleneva, Kharin, Yelenev, Andreev, Kharina, & Kruchkova (2018).

Project businesses, through its involvement with other entities, strengthen shared reflection on new working processes, support products and services that a firm delivers, and helps in better understanding of the overall business strategy. Such matters are eventually important for any knowledge management department to successfully function and improve. Project businesses could help in attaining individuals' self-efficacy, which is much related to knowledge sharing as it supports skills necessary for knowledge sharing and performance, which eventually lead to achieving individual goals, greater effort, job satisfaction and performance. For project businesses, one of the most important actions to be made is to strongly support unstructured work environments in knowledge management units especially in areas where creativity and innovation are crucial. In addition, the overall employee willingness to both donate and collect knowledge enable the organization to improve innovation capability to a great extent (Svetlik, Stavrou‑Costea & Lin, 2007).

Knowledge management departments in recent organizations facilitates the decision-making process through adequate and relevant data. They also facilitate access to information for employees and raise their participation levels. Knowledge management helps in establishing a learning and attractive environment which considers and deals successfully with modern concepts such as digital and knowledge economy as well as knowledge sharing. Knowledge management drives inventions and innovations within the organization helping to raise skills and qualification levels. It also motivates cultural change and stimulate new ideas for better performance and outputs.

Human sciences scholars have addressed the importance of knowledge management as a crucial asset for any organization working in any type of business. Management currently use IT tools and practices to make the best use of the organization's intellectual capital. (Davenport & Prusak, 1998). Knowledge management department, if appropriately administrated, eventually leads to an increase of the organization's overall performance, and is considered a key requirement for future successful organizations in terms of profit maximization and skills acquisition (Dyer, 2001).

Project businesses support knowledge management department through different CSFs that are usually grouped into a number of enablers. Jung Yeh, Quae Lai and Chin‑Tsang Ho (2006) found that among such CSFs:

1. On the part of strategy and leadership: Obtaining top managements' support.

2. On the part of organization culture: The formation of an atmosphere and culture of sharing supplemented by informational technology.

3. On the part of employees and human capital: Offering training courses and channels that provide learning, and the presence of a clear and ambitious employee incentive program.

4. On the part of informational technology operations: Implementing digitization of documents, and activating the function of speedy search of information for its re‑use and sharing.

Previous research on the successful performance of organizations and their continuity in industry markets has often emphasized the crucial importance of the existence and practice of CSFs in departments of the organization and in the knowledge management departments in particular. In general, Saraph, Benson, and Schroeder (1989) define CSFs as necessary areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization.

There are many CSFs that an organization can depend on to ensure successful and sustainable performance, and researchers usually emphasize importance of many according to organizations' structure and objectives. Chua; Kog & Loh (1999) grouped the CSFs under four main project aspects, namely, project characteristics, contractual arrangements, project participants, and interactive processes. The study emphasized the increasing role of CSFs addressing budget performance, schedule performance, quality performance, and overall project success.

However, CSFs are not constant; they are dynamic and they can also change dramatically according to relevant changes in knowledge management goals and objectives of the organization as a whole and regarding respective project strategies. Pinto and Prescott (1988) investigated changes in the importance of project CSFs across four stages in organization's project life cycle. They concluded that the relative importance of several of the CSFs change significantly based on life cycle stages.

In a study made by Lindner & Wald (2011), the cultural enabling factors strongly influenced knowledge management success especially in temporary projects that lack organizational routines. The study contributed to a more differentiated understanding of knowledge management in project environments. Listening well to organizations' employees and customers and trying to help them is for example a culture that is extracted from CSFs (Hasanali, 2002).

Akhavan, Jafari, & Fathian (2006) found that the CSFs can act as a list of items for organizations to address when adopting knowledge management effectively. This helps to ensure that the essential issues and factors are covered during design and implementation phase of knowledge management plans.

Leidecker & Bruno (1984) discussed eight possible sources of CSFs that affect strategy planning in businesses including environmental analysis, analysis of industry structure, industry/business experts, analysis of competition, analysis of dominant organization in the industry, company assessment, temporal/intuitive factors and PIMS results. Such factors act as input for environment analysis, resource analysis, and strategy evaluation.

In a case study presented by Chong (2006), eleven success factors for knowledge management were perceived as important for successful operations of Malaysian information and communication technology (ICT) companies, however, the study found but there were significant differences between all the factors perceived as important and the level of implementation of those factors. The study recommended that future studies on the subject should include as bigger sample size as possible and from various industries so as to ensure that the results can be generalized. It also emphasized the importance of the success factors presented and their correlation with organizational performance.

According to a study presented by Davenport et al. (1998), eight CSFs were found common in successful knowledge management projects. They include linkages to economic performance, senior management support; clearly communicated knowledge management objectives; motivational incentives for knowledge management users; multiple channels for knowledge transfer; a knowledge friendly culture; a solid technical and organizational infrastructure; and a standard, flexible knowledge structure.

Most researchers in knowledge management studies concentrate on project management as one of the most important CSFs for knowledge management especially for the planning process. It ensures that company projects can be implemented successfully on time and within the allocated budget. This is also tied to appropriate training and education for employees as well as a good organizational culture where the employees share common values and goals and are adaptive to change. Other CSFs include "interdepartmental cooperation and communication, software development, system testing and troubleshooting, monitoring and evaluation of performance, appropriate business and IT legacy systems, technical and business knowledge, addressing management expectations, vendor partnerships, use of vendors' development tools and vendor selection" (Wong & Tein 2003).

4. Knowledge Sharing

The importance of knowledge sharing has been increasing in the past years. Technology has been playing the pivotal role to facilitate the knowledge sharing process through the Internet. Technology is the mean that improves the information exchange mechanism, dissemination and sharing of knowledge. It also supports cooperation and interdependence between parts of the organization. Companies resort to technology and knowledge sharing to increase output and to achieve more effectiveness.

Trussler (1998) stressed on certain CSFs that guarantee the success of knowledge sharing between different organizations. He highlighted the importance of the existence of a solid and encouraging culture that supports knowledge sharing process and the continuity of creating incentives for development and progress. He also identified leadership and senior management commitment as a crucial CSF for success as well as the existence of education and learning and technical infrastructure.

Knowledge sharing has been potentially transforming the whole business and knowledge industry. Knowledge sharing in businesses cannot take place without the existence of solid and specialized knowledge bases. The knowledge-based system would then interoperate with existing systems to offer declarative knowledge, problem- solving techniques and reasoning services. Knowledge-based system development and operation is much facilitated by infrastructure and technology for knowledge sharing.

A study presented by Azizan, Smith and Cooper (2011) aimed to identify CSFs which enhance knowledge sharing and support government website providers in taking decisions related to internal operation of content development and delivery. The study findings pointed out that there are many CSFs which enhance capacity to deliver requisite knowledge to users. These factors include:

1- Leadership and top management support of valid knowledge.

2- User's knowledge needs which requires the provider to be aware of different knowledge resources.

3- User's level of IT literacy.

4- User's need for professional training and education through an electronic knowledge management platform.

5- User's perception of usability including searching, interacting and navigation.

6- Required match of employees' roles and their relevant competences for smoother process execution.

7- Required knowledge content for better presentation in terms of data amount, quality and timing.

8- Accessibility of knowledge to users through a sound ICT infrastructure.

9- Interactive platform functionality where users can give feedback.

10- Search engine functionality for efficient search and retrieval of information.

11- Security requirements to ensure safety and data privacy.

12- Organizational culture that creates positive attitude to technology and change.

Other scholars such as Goh (2002) considered the existence of a sound technology platform; organizational culture and leadership practices as fundamental CSFs that facilitate the work of knowledge management departments inside different organizations. He also emphasized the value of senior managers' attitude at work towards their employees and customers as well as the presence of incentive programs such as reward systems and ability to get use of different knowledge types.

Nelson and Somers (2001) have purposed some other CSFs like data analysis and conversion as two important CSFs that have not been discussed in details in previous literature. Such factors need to be addressed in relation to knowledge management strategies formulation and overall objectives.

5. Strategy Formulation

Knowledge management departments are nowadays a crucial part of any organization that aims development and growth. They have been key strategies that organizations are embracing to manage their organizational knowledge for strategic advantage. Project businesses of organizations usually help their knowledge departments to engage in better strategy formulation and implementation.

Carneiro (2000) found that project businesses which encourage the organizations' competitiveness and innovation advancements will positively affect knowledge management departments regarding strategic management and the proper formulation of competitive strategies. His study pointed out that knowledge development is related with personal characteristics and personal development in knowledge management units which will ultimately assure the organization competitiveness.

Project businesses will perform in a very poor manner if they are not fed by constant creation of knowledge. Knowledge management strategies, either human or system oriented, should be aligned with four knowledge creation modes such as socialization, externalization, combination, and internalization. (Choi & Lee, 2002). Human strategy is more likely to be effective for socialization while system strategy is more likely to be effective for combination. Knowledge department managers should adjust their knowledge management strategies in view of the characteristics of their departments and their targets.

6. Innovation

Knowledge sharing has been, therefore, one of the important CSFs for business projects in knowledge management. However, with close importance and significance is the concept of innovation.

In the light of the global economic changes, organizations are currently allocating increased budgets for innovation in order to study the markets, develop the skills and creative capabilities of workers and encourage their innovative activities. Therefore, the current increasing trend towards establishing solid knowledge management systems has increased to achieve innovation and strive to provide an appropriate work environment for it as the most powerful source for achieving the competitive advantages of organizations.

Sung (2011) identified eleven CSFs that impact business innovation related to knowledge and knowledge management. These factors included: motivation and rewards, team manpower, strategy, methodology, goals and measurement, organizational structure, change management, role of information technology, implementation, leadership, and communication. The study found that these CSFs in particular have very significant explanatory power in the success of business innovation for business projects and knowledge management departments and

in the achievement of knowledge management objectives.

Project businesses should always compete for industrial innovation and thus affecting profoundly knowledge management in creating competitiveness in the market. Project businesses managers and policy makers pick CSFs that best suits knowledge management in terms of determinants and consequences of innovation. A wide range of studies attempted to explore the sectoral and industrial studies through assessments of the key issues affecting innovation. Other studies examined main constraints on successful innovation including the strategic management of technology in both products and processes (Miles, 1995)

Project businesses throughout the world should consider the impact of ICT innovations and the development of the Internet and organization's intranets on the structure and operations of their knowledge management departments. This process will ultimately affect upgrading knowledge departments' main services including creating and maintaining both an Internet framework and a portal to internal company information, content acquisition, synthesis, integration and organization. The final target of project businesses in choosing best CSFs is to enable knowledge management departments to use the technological developments they have more effectively and to rationalize and integrate it better so that it will deliver more value at the end (Smith & McKeen 2003).

7. Knowledge Creation

Knowledge creation means continuous combination, transfer, practice and conversion of different knowledge that is considered important source of organizations' sustainable competitive advantage. Knowledge is thus created through a continuous dialogue between tacit and explicit knowledge (Nonaka, 1994). It is a formation of new ideas that originally take place through interactions and includes tacit and explicit forms of knowledge. Knowledge creation is an active ongoing social process that usually takes place through R & D activities, learning by doing, teamwork, cognitive cooperation, interactions between organizations, institutions or individuals, Internet platforms, interaction with increased input of creativity and innovation, interactions between explicit and tacit knowledge, strategic alliances, and benchmarking based on the organizational tacit and explicit knowledge. Knowledge creation is useful when the organization has a strong ability to disseminate knowledge and transfer it into products and services. It is also useful when the organization is able to construct new insights by the learner from existing elements and is able to apply skills such as reflection and creativity that improves learning outcomes (Nonaka, 1994).

Knowledge creation as a continuous exploring, interacting and learning process depends largely upon the mechanisms related to knowledge sharing and practicing knowledge in a competitive and incentive place where interaction and experimentation are guaranteed. Knowledge creation should be practiced away from routine work and binding regulations and is also highly dependent on IT systems innovations.

A study presented by Sokhanvar, Matthews & Yarlagadda (2014) found that knowledge creation and capturing are the most important processes as CSFs that project businesses could use for best knowledge management practices within the knowledge management department. It also pointed out that knowledge transferring and reusing are not as important as the knowledge creation and capturing. According to the study findings, provision of knowledge about customers and project management knowledge are the most important types of knowledge that are required at this level.

One of the most important CSFs for project businesses is abiding by cultural norms that support knowledge management departments in knowledge creation and sharing. The proper encouraging cultural norms and values could stimulate knowledge creation, but inappropriate cultural environment could prevent new ideas at work. March (1988) discusses how strict cultural norms and values within different organizations often stifle innovation and new knowledge creation. Knowledge departments are able to succeed with knowledge creation process if project businesses of their relative organizations widely accept and support the presence of cultural environments that allow continuous interaction, openness brainstorming, trial and error, and unstructured interaction.

8. Conclusion

Project business support knowledge management departments through number of critical success factors. The significance of strategy formulation, presence of an appropriate and encouraging cultural environment, knowledge sharing and creation, innovation and other factors are extensively covered in previous academic research and practical studies. Despite of this extensive research and useful findings, there is not enough studies that explore proper linkages between technological advancements and the decision making process and the need for expanding the role of knowledge management departments in terms of investing in IT assets. In addition, the previous literature on the subject lacks studies about rationalizing the use of knowledge tools and how such

rationalization be supportive of knowledge management departments in some way or another.

There is also a need for more focus on social ingredients of CSFs, especially in the Arab region, to enable more effective work for knowledge management department. Human intellectual experience, skills, talents, incentives, behaviors and aspirations could provide rich elements for strengthening the impact of CSFs on knowledge departments and on the performance of the overall organization. Moreover, there is little empirical research, to date, that examines the success of knowledge management on a global basis once the system has been adopted to enable comparison and benchmarking.

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