Designing a Model for Implementing Knowledge Management in Project-based Organizations: Case Study of PATSA Co.

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ABSTRACT

In 21st century, knowledge is known as one of the most significant resources of organizations. Researchers and experts are trying to figure out the ways to accumulate and manage knowledge sources in order to maintain the firm's competitive advantage. In project-based organizations, the knowledge gained at the end of each project, plays a leading role for the success of the organization in further projects. Nowadays, an increasing interest in knowledge management arena exists in organizations and there are numerous researchers who have posed different models for effective implementation of a KM system. We have focused on project-based organizations in which KM plays a crucial role, and developed a model for implementing KM. An exploratory qualitative research was used to develop the model and it was validated with a single case study on a leading ICT company of Iran.

Keywords
Knowledge management, Project-based organizations, Knowledge management implementation model

1.0 INTRODUCTION

The concept of Knowledge Management (KM) emerged during 1990's with the goal of helping the organizations focus on managing the knowledge which exists within them. Organizations have become more aware of the value of their knowledge and have come to realize that they are losing valuable organizational knowledge when employees leave the organization, and that finding and using the substitutional knowledge within the organization is often problematic (Alavi & Leidner, 2001).

Much of KM literature claims that the exploration and the exploitation of knowledge can be successfully and effectively facilitated by the use of IT-based tools (Swan, Newell & Rebertson, 2000). However, KM should be seen as more than just another IT application (Earl, 2001). Technology has

been seen as a key enabler of KM, whereas it may also be a disabling influence if aspects such as social change or politics are considered (Swan et al., 2000).

A key premise of this research has been that knowledge is seen as being situated and can be understood as "embedded in, or constructed from social relationships" (Swan et al., 2000). Therefore knowledge cannot be extracted from individuals as it is embedded in social relationships (Hunter & Beaumont, 2002). Within organizations, Knowledge is influenced by organizational structures and cultures (Hunter & Beaumont, 2002). KM is originated in data and information management and also organizational learning. Knowledge is an important resource within organizations that can be leveraged to improve organizational performance. As an important organizational resource it follows that knowledge should be managed just like traditional resources such as raw materials and physical labor. Knowledge is being seen as an asset due to the changing face of organizations, where innovation is gained from better access to knowledge.

KM initiatives fail more often than they succeed (McDermott & O'Dell, 2001). There has been very little research on how to successfully develop and implement KM solutions to enhance performance, particularly in core business process (Massey, Montoya-Weiss & O'Driscoll, 2002). The lack of such research makes practitioners face some problems and limitations for having practical guidelines on how to build and implement a KM System, , and how to facilitate organizational change to promote knowledge sharing (Alavi & Leidner, 2002).

Our goal in this research was to propose a model for implementing KM in project-based organizations. Hence, some studies have been done and some models have been taken into consideration, so that using and merging of their success factors, our model becomes more efficient. Afterwards, we chose an organization for implementing our suggested KM model, gathered required information from the staff and held some

meetings with the CIO, and finally, our model was successfully implemented.

2.0 PROJECT-BASED ORGANIZATIONS

In project-based organizations, organizational chart is based on projects. In other words, a project does not only belong to a specific part of the organization. Project manager chooses the staff he needs for the project from different departments of the organization, so that in addition to their own task, they also participate in the project. Project manager appraises the project team and this appraisal affects their promotion and wage. The project team eliminates the limits between the intersections, and since the success of every individual depends on the success of the project, every member does his best to help the project succeed.

3.0 KNOWLEDGE MANAGEMENT

In the past decade, managers and business consultants have presented a great interest in KM. KM has been even called 'exaggeration' in many seminars, symposiums and workshops.

KM is a newly emerging interdisciplinary business model dealing with all aspects of knowledge within the context of the organization, including knowledge creation, codification, sharing and how these activities promote learning and innovation. In practice, KM encloses both technological tools and organizational routines in overlapping parts.

Gordon sees KM as "the effort to make the knowledge of an organization available to those within the organization who need it, where they need it, when they need it, and in the form in which they need it in order to increase human and organizational performance." (Gordon, 2000)

Edwards and Mahling define KM as "… the organized effort to capture, organize and share the knowledge of employees for the achievement of a shared strategic goal." (Edwards & Mahling, 1997) Rademacher defines KM as "comprising activities necessary to discover, acquire, store, manage, develop, disseminate and use knowledge." (Rademcher, 1999)

Alavi defines KM as "… an IT-based system developed to support and to enhance the primary organization knowledge management processes of knowledge generation, knowledge codification and knowledge transfer." (Alavi & Leidner, 2001)

Hoffman's definition of a KM system provides support to "the organizational process of development of new knowledge, preservation of knowledge, distribution of knowledge and the recombination of knowledge." (Hoffmann, Loser, Walter & Herrmann, 1999)

Our definition of KM is derived from Alavi's and Hoffmann's. We define KM as a systematic effort for sharing and using the organizational knowledge within the firm in order to increase organizational performance.

4.0 RESEARCH DESIGN

An exploratory qualitative research was used to develop the model with a single case study since single cases can enable creation of more complicated theories compared to multiple cases (Eisenhardt & Graebner, 2007). PATSA Group Corporate which is the leader company in ICT field of private sector of Iran was used as the case. PATSA is a twenty-year old company which has executed various national projects. The case was chosen because of the nature of the field of activity which is uncertain and has a noticeable rate of growth; these two criteria provide a competitive environment in which the role of KM is essential. The main objectives of the research were: identifying the required KM needs of the case, designing the appropriate KM system and implementing the system.

5.0 OUR SUGGESTED MODEL FOR IMPLEMENTATION OF KM

We categorized 7 major phases for implementing KM in project-based organizations:

5.1 Discovering and Assessing the Required Knowledge

The first step in any KM implementation is to discover what knowledge an organization requires. Our suggested way for assessing what knowledge a firm may require in the future, is to utilize scenario planning. In order to develop a series of views about its future competitive environment, an organization can develop a strategy which will best position it for competitive success based on these scenarios. When these views of the future are developed, the organization can assess how KM initiatives might be instituted to help the organization achieve the strategy it develops.

Scenario planning offers a framework designed to address complex and highly volatile environments by revealing and organizing the underlying uncertainties (Day & Paul, 2000a). Thus, scenario planning is an analysis that has been developed to help managers develop a strategy in uncertain business environments.

Instead of planning for the future based on a single outcome, scenario planning develops "which set of multiple futures might be likely, and how the company can best prepare for all of them" (Day & Paul, 2000a), and it offers the possibility for managers to use the strategy which leads the organization to better outcome. These scenarios help the managers consider the different choices in different situations and minimize unpredictable risks in the future.

5.2 Assessing the Acquired Knowledge and Knowledge Sharing

Second step for implementing KM in an organization is to assess, keep and share the existing knowledge in the organization. Such assessments reveal the facts such as how knowledge is retained in the organization and where the weakness in knowledge storage, sharing, retention and transfer can be found. This diagnostic test will enable the designer of KM system to have a better understanding about the best way to design the organization's KM initiatives.

A common diagnostic test which is used to assess an organization's degree of connectivity- both internal and external- is a social network analysis. Social networks are groups of people who can be inside or outside the company, have common goals and share information, help each other and learn from each other. Once such analysis reveals the potential for enhanced connectivity, we consider that a KM solution may be able to increase the capacity of sharing knowledge within the organization.

5.3 Obtaining the Support of Senior Management of the Organization

When the organization identified its future knowledge requirements and assessed the degree of knowledge sharing, next step would be to gain the senior management support. Such support is essential for 2 reasons:
1. For decisions of investment
2. The employees accept the system more easily if they see the support of senior management.

5.4 Designing an Integrated System Which Contains Tools and Technologies

When the support of senior management is obtained, we can start to design a KM system. Instead of designing it all at once, we suggest considering step by step strategies. This, in return, enables us to delay, cancel, or invest more on the project. Hence the expenses and risks are minimized.
We consider three major sub-phases in this phase:
1. The initial phase: in which KM program is used in small and limited departments of the organization

2. The expansion sub-phase: in which KM program is developed and expanded all over the organization.

3. The use sub-phase: in which KM system is used in the entire organization in a period of time and reaches a stage of maturity.

In all these three sub-phases, we have to make case-dependent decisions such as the speed of expansion or the type of techniques and technologies that are best suitable according to the needs and characteristics of the organization.

5.5 Designing Incentives for Using KM

When the KM system is built in the organization, we should encourage the staff to use it. In order to have the staff use the built KM system, we need to design incentives. For instance, we could consider a higher salary or a proper promotion for those who use KM system. After sometime, they will consider how fruitful and effective the KM system is; so they become eager to use it anyway! Ideally, participation in KM system would be its own award. We have to teach the staff how to benefit the KM system. For example, how to share their knowledge or use others' knowledge through suggested system. If we could convince the staff to use the KM system so they can consider the differences it makes, they would understand the profitability of the ability to access their needed knowledge in the corporate memory of the organization. Ultimately, with the help of an effective KM system, their job becomes more challenging and rather than collecting data, they can concentrate on solving problems.

5.6 Assessing and Measuring the Effect

This stage contains assessing and measuring the differences which are made through the use of KM system. The important thing in this stage is to measure the effects of the system in order to evaluate its performance and to manage expectations.
In the fourth phase, we suggested three sub-phases (initial, expansion and the use phase) for the implementation of KM system. In this phase, we define some criteria. Since every sub-phase has its own challenges and goals, for each sub-phase different criterions are suggested.
Some criterions for the initial phase are:
- Comparing our KM system with those which were successfully implemented and used through a satisfactorily long time

- Awareness of staff about the KM system and its profits in the departments in which it is tested

- Users' feedbacks

- Time saved

- Contributions in knowledge database

Some criterions for the expansion phase are:
- Comparing our KM system with those which were successfully implemented and used through a satisfactorily long time

- Users' feedbacks

- The organization can benchmark its KM system relative to its peers.

- Time saved

- Customer satisfaction

- Improvements in productivity of the staff

Some criterions for the use phase are:
- The awareness of the staff about the KM system across the firm

- Conducting periodic social network analysis in order to assess the current level of knowledge sharing in the organization.

- Cycle time reduction

- Participation in communities of practice

- Usage frequency

- Number of users

- Measuring ROI incorporates the revenue gained or saved from the usage of KM system.

5.7 Promoting the System and Advertising Success

The last phase of our suggested KM model is to promote the KM system and advertise our success. Such promotion is the key to long-term success of the organization. If people see the system as a powerful source, they are also more likely to contribute to it (Sarvary & Miklos, 1999b). The more success stories that employees hear about, the more encouraged they get to use the KM system. Increased usage leads to further success which then, leads to further increased usage.
There are several ways through which an organization can advertise its KM system. The organization can advertise its successful techniques and technologies of Km system via its newsletter or its corporate intranet, or even in the official regular meetings. By using these different media, the organization can both educate its staff on its KM system, and encourage them to use it by advertising success stories.

6.0 THE RESULT OF THE VALIDATION PROCESS OF THE MODEL

PATSA Co. has been working as a project-based solution provider company since 1990. To validate our model, we chose an active project which was about the implementation of LAN and WAN networks in Assalouyeh city, south of Iran. The project has started in September 2008, and ever since till the complete implementation of KM, the project didn't progress on schedule.

When we first interviewed the project manager, he believed that the most important problem was that at the beginning, the project team members were not familiar with the project's structure, and as a result they could not meet the expectations of the sponsor. Also the project suffered from some managerial problems; the managers were reluctant to stick to the schedule since they were satisfied with low work pressure. Last but not the least, being separated in two cities, the team members had few chances of collaboration and interaction.

However, compared to other projects of the company, our case had some advantages; namely, the explicit knowledge of this project had been documented, and almost all of the needed documents were available, though not easily accessible due to poor information flow.

So, analyzing all problems that were not fully described here and is not the intention of this paper, we had a meeting with top managers of the company and the project manager and convinced them that KM can be a solution to their problems. Having the official authority of the top managers and their support, we tried to implement our model. In the first phase we used scenario planning for identifying the needed knowledge of the future. As the second phase, we designed a portal and the KM databases. Having identified the formal and informal relations between the staff, the strengths and weaknesses in sharing knowledge were recognized. Third phase was holding a meeting with the CIO and gaining his support.

For the next phase, we designed a KM system in 3 sub-phases: the initial, expansion and use sub-phases. In the initial sub-phase, we identified different departments and people involved in the project and, the information technology infrastructure of the company was evaluated. In the expansion sub-phase, we tried to absorb the explicit knowledge of the employees. Capturing this knowledge using appropriate methods, we used a database to save, share and retrieve it. We used the company's intranet as the infrastructure for this purpose. In the use sub-phase, we encouraged the staff to the further use of KM system.

We needed an incentive for next phase. So we held a workshop and encouraged the project team members to use the new KM system, accessible through company's intranet, and introduced some financial bonuses to those using the system. Then, we assessed the effects of using the KM system with the criteria like time reduction in project various processes, and project team members' satisfaction feedback of the system usage. In the last phase, we presented this successful implementation of KM system in a meeting followed by organization's intranet and newsletter.

7.0 CONCLUSION

The objective of this paper was to suggest a model of KM implementation for project-based organizations. Our study resulted in a seven step implementation process which organizations can use as a guide to their KM implementation.

It is important to remember that KM is rather a business process than an extension of Information Technology. It is the process through which firms create and use their institutional or collective knowledge (Sarvary & Miklos, 1999b). Thus, our study of KM has tried to demonstrate that a KM program has to integrate Information Technology, the culture of the organization, organizational processes and senior management support in to a union system. The organizations which can successfully manage this integration will be the organizations which can successfully develop knowledge for competitive advantage.

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