

Combining Knowledge Based System with Information Technology based Project Management

Nour Eldin Mohamed Elshaiekh, Arockiasamy Soosaimanickam

Faculty members, Department of Information Systems, College of Economics, Management and
Information Systems, University of Nizwa, Sultanate of Oman.

Email: noureldin@unizwa.edu.om, arockiasamy@unizwa.edu.om

Abstract: *Using the growing trend for better project management is very much essential and widespread, particularly for information technology (IT) based projects. Many institutions today have a new or renewed techniques and methods in handling project management. The Internet, computers devices, software systems, applications, knowledge and the practice of interdisciplinary is a worldwide effort and it has completely changed the project management activities. Most of IT project need to use some computer applications for more efficient and great quality to increase reliability and improve productivity and also to avoid any failure that may occur. Hence Knowledge based system is (KBS) is a kind of computer database that motivates projects and uses knowledge to solve complex problems. Combining this kind of systems with IT project management will help the integration of these systems to support IT projects management in order to improve the quality, better management and reliability of these projects. The main purpose of this paper is to explore the possibilities of ongoing effect of combining knowledge management system with IT projects management. This will provide the sufficient review of the idea of knowledge based project management. It discusses the various reasons for managing IT project combining with knowledge bases systems. Additionally the paper surveys a number of studies to classify the practices of KBS and IT projects. Finally, the paper highlights in the conclusion as knowledge based systems will be a good tool for IT project management.*

Keywords: Knowledge Management, knowledge based systems, Project Management, IT Projects,

1.1. Introduction

Many Institutions today face heavy market competitions and the fittest only will survive. The combination of updated and innovated application is one of the most important techniques that leads to intuition sustainability in the marketplace. The innovative knowledge transforms into IT projects and services that encourage project stakeholders to grow and survive in the business. Computer applications or systems are the end results or outcomes or deliverables of the IT project management initiatives of the organizations. Nonaka (1991) argues that effective businesses are those that reliably make new knowledge, circulate and document the learned lessons for the future works.

1.2. Background and related work

This section will include the definition of related terms.

1.2.1. Knowledge Management

According to Prahalad & Hamel (1990) Knowledge could be traveled separately or as part of knowledge management or the knowledge management system theory. The idea of knowledge is explored by Seufert, Back and von Krogh (2003) as an incessant movement in which knowledge is branded into logical processes such as restricting and capturing; sharing and transferring; creating and applying as well. They try to explain knowledge management as a process of managing knowledge to allow “creation of entirely new knowledge, while also accelerating the innovation”, Seufert et al. (2003:106). Others have argued that knowledge management also contributes to the efficiency in a saving situation mentioned by Thompson (2003).

Several scholars discussed that the main parts of knowledge management include the organizational culture, processes and technology, Lee & Hong (2002); Chung et al. (2001). Bollinger and Smith (2001) acknowledge that the knowledge management is a resource of how and what the organization knows about product customers, and processes, and stored in databases or is added through the sharing of knowledge's and best practices of both inside and outside as given by Bollinger & Smith (2001).

Knowledge management is the idea, under which, the information is turned into usable knowledge and kept accessible smoothly in a practical form to the users who can implement it as mentioned by Patel and Harty (1998). Knowledge management consists of “leveraging intellectual assets to enhance organizational performance” by Stankosky (2008).

1.2.2. Knowledge-Based Systems

A knowledge-based system (KBS) is a computer system which produces and uses knowledge from different bases, i.e. data and information. KBS help in solving problems, particularly complex ones, by applying artificial intelligence techniques. KBS are typically used in problem-solving actions and sustenance of human knowledge, decision making and activities.

Knowledge-Based Systems is an international, interdisciplinary and applications-oriented system. This system uses knowledge-based (KB) techniques to support human decision-making, knowledge acquisition; covers the application of such KB-systems: plan process, representations and approaches, software tools, decision-support techniques, user connections, structural issues, knowledge gaining and illustration, and system buildings as mentioned

in the book titled KNOWLEDGE-BASED SYSTEMS.

KBS contains user interface, software program called inference which is responsible for checking the availability of knowledge into the knowledge based systems, all work to gather to response to the user's explanation, also have the ability to generate and learn new things.

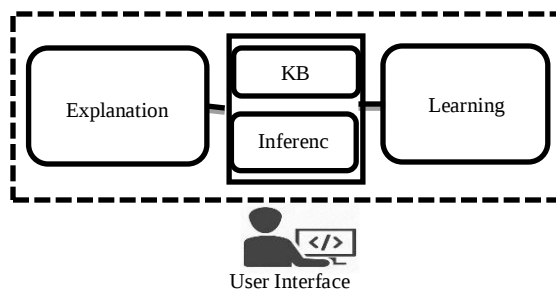


figure 1: knowledge base components

1.2.3. Project Management

The Institute's Project Management Body of Knowledge guide (PMBOK) describes that the project as "a temporary endeavor undertaken to create a unique product, service, or result" (PMI 2008:4). A project can make a product that can be either a module of additional piece or an end piece in itself (PMI 2008). Project management is defined as "the application of knowledge, skills, tools, and techniques to project activities to meet the project requirement" (PMI 2008:6).

According to the PRINCE2 guide, a project is "a temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case (OGC 2009:16). Project management is defined as "the preparation, giving, checking and control of all features of the project, and the inspiration to attain the project goals within the predictable presentation goals for time, cost, quality, scope, aids and threats" (OGC 2009:17).

According to the PMBOK, the growth in project management shows that the implementation of suitable knowledge, procedure, skills, gears, and techniques can have a major influence on project achievement (PMI 2008). The main objective of project management is to confirm that a project can be accomplished at the vital scope defined by the stakeholders, within project budget, on time and brings a quality product or service as the end outcome.

Dealing Fruitful Projects with PRINCE2 offers a set of values, melodies and procedures to bring a fruitful project according to the business case. (OGC 2009). PRINCE2 shows that a main success factor of any project is that it delivers what the user supposes and discovers it satisfactorily (OGC 2009).

1.2.4. IT Projects

The processes, tools, techniques, and areas of knowledge needed to successfully manage activities contain computer related items including hardware, software and equipment.

IT project management is a sub-discipline of project management in which IT projects are planned, monitored and controlled.

According to PMI 2008, IT project is endeavor in which human (or machine), physical and economic resources are used in an original mode, to assume a unique choice of effort, or given requirement, within restrictions of cost and time so as to bring helpful alteration by quantitative and qualitative goals" the hardware and software that make information systems possible.

IT project management is the method of development, forming and describing duty for the achievement of an organizations detailed IT objectives.

1.3. Combining Knowledge Based Systems with IT Projects

The previous sections of the paper deliberated the definitions of knowledge management, knowledge based systems, project management, and, IT projects. This section discusses the related literature on combining knowledge based systems and IT project to improve IT projects success in the institutions. This paper focuses on IT projects as knowledge based systems or computerized systems so as to best use of IT Projects which will be most applicable on such cases.

One of the most important factors that affect in the failure of IT projects is estimation of goal, scope, cost, time, and quality. Ismail and others (2009), mentioned that the process of sharing knowledge which shows that providing appropriate persuaders to sharing requires knowledge and practice would consequence in additional competent and actual sharing of knowledge in IT projects activities which in turn would lead to an augmented chance of project success. They suggest that there are significant associations among effective knowledge based projects, knowledge sharing practice and project success. The authors decided that confirming when and how tacit and explicit knowledge is shared is vital for improving IT project success as given by Ismail et al. (2009). See in figure 2.

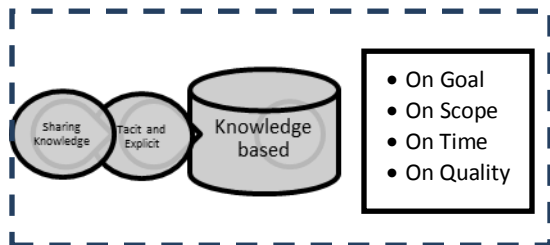


Figure 2: Proposed theoretical framework for project knowledge based Project [Source Ismail et al. 2006]

Cope et al. (2006) suggested that institutions would take advantage critically from taking and involvement of knowledge within the IT project community. Moreover, Owen (2008) suggested that knowledge is entrenched during the project phases at both tacit and explicit stages. According to Owen, tacit knowledge is developed and transferred via mentoring from project members with more experience through computer tools, while explicit knowledge is reprocessed standings of project record stake throughout the project phases also by using computer applications.

Gudi and Becerra-Fernandez (2006) mentioned certain knowledge based tools, procedures and technologies that might be applicable for IT project management. They decided that there are numerous issues moving IT project risk in many project of that institution. These include technologies affect project member adaptation which in turn will try to disturb project success as given by Gudi and Becerra-Fernandez (2006). According to the above described literature, IT project management success is measured by time, cost, quality and features.

Supporters of Knowledge Based integration with IT projects request that it is essential to allow the project stockholders to combine individual contributions to the project's goals and bring them into line with the institution's considered purposes as mentioned by Levin (2010). Also, many researches have been made to mix features of knowledge based IT Project Management in order to improve project success.

1.4. Proposed mixed Knowledge Based & IT project Management Model

In the above sections, the literature shows the importance of combining knowledge based system with IT project Management which will move to improve project phases and knowledge sharing and confirming project success.

A theoretical model is now proposed based on the information conducted from the literature argued in the above sections, which presents the principal benefits that could be taken from combining knowledge Based system and IT project management. The proposed benefits included in this paper are sharing, lesson learned, acquisition, documentation, follow-up, estimation, and evaluation of the IT project through all project phases as given in Lee and Hong (2002) and by Chung et al. (2001).

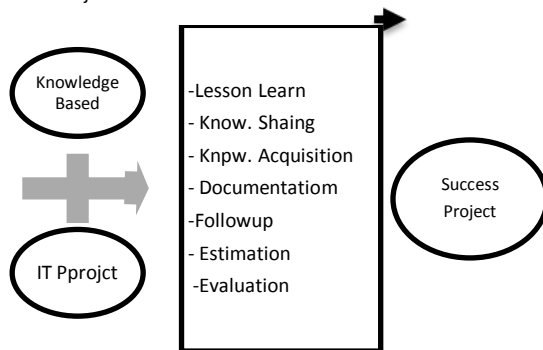


Figure 3: Proposed Mixed knowledge based system and IT project management model

1.5. Conclusion

The main purpose of this paper is to show how knowledge based system and IT project Management will be integrated to improve IT project's success in institutions. Related literature in the fields was collected and analysed. It is significant to realize how knowledge could be shaped through projects and how the knowledge is shared with other project stockholders. It is presumed that continuous informing and follow-up with the project progress arrangement in the project phases as well as knowledge transferring

between the project stockholders is important for improving the achievement of a project. A model is proposed to recommend that both knowledge based systems and IT project management could have major effects on project's success. The common benefits are: easy access to the store of the lesson learned, knowledge sharing among members, documenting project items such as work breakdown structure dictionary and project charter, allows all stockholders to follow the project progress, and finally to evaluate the project through different kinds of report generated from the knowledge based systems.

This paper provides an important contribution to show how the integration between knowledge based system and IT project management in the performance of these projects performs together as a good tool to manage the IT project management and its success.

References:

- [1] Bollinger, A.S. & Smith, R.D. 2001, Managing organizational knowledge as a strategic asset. *Journal of Knowledge Management*, vol. 5, 8-18.
- [2] PMI 2008, A Guide to the Project Management Body of Knowledge (PMBOK), Project Management Institute, Newtown Square, PA
- [3] Davenport, T. H., & Prusak, L. (1998). Working knowledge: how organizations manage what they know. Boston, Mass: Harvard Business School Press.
- [4] Hobohm, H.-C., et. al. 2004. Knowledge management. Libraries and librarians taking up the challenge. IFLA Publications Series 108. Berlin: Walter de Gruyter GmbH & Co. KG.
- [5] Ismail, W.K.W., Nor, K.M. & Marjani, T. 2009, The role of knowledge sharing

- practice in enhancing project success,
Institute of Interdisciplinary Business
Research,
- [6] Patel, J., and J. Harty 1998, Knowledge management: Great concept but what is it? Information Week, March 16, 1998.pric
 - [7] Levin, G. (2010). Knowledge management success equals project management success, PMI Global Congress, 11 Oct 2010, Washington D.C
 - [8] Lim, T.T. 2008, Organizational Culture and Knowledge Management. DBA thesis, Southern Cross University. Nonaka, I. 1991. The knowledge-creating company. Harvard Business Review, November-December 1991. OGC 2009, Managing Successful Projects with PRINCE2TM, The Stationary Office, Norfolk, UK.
 - [9] Seufert, A., Back, A. & Krogh, G.V. 2003, Unleashing the power of networks for knowledge management: putting knowledge networks into action, in Beerli, A.J., Falk, S. & Diemers, D. (eds), *Knowledge management and networked environments: leveraging intellectual capital in virtual business communities*, Amacom, New York, 99-136.
 - [10] Smith, Reid (1985), *Knowledge-Based Systems Concepts, Techniques, Examples*,. <http://www.reidgsmith.com>. Schlumberger-Doll Research. Retrieved.
 - [11] Stankosky , M. 2008 . Keynote address to ICICKM (International Conference on Intellectual Capital, Knowledge Management and Organizational Learning), 9 – 10.
 - [12] Thompson, E. 2003, Effective KM in a cost-cutting environment, *KM Review*, 6, 12-15.
 - [13] Turner, J.R. 2009, *The Handbook of Project-Based Management*, Mc-Graw