

# Customized Knowledge Management Success Factors for Iranian Organizations

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## ABSTRACT

*Most of large companies have allocated plenty of resources to knowledge management because they believe Knowledge and its management is a foundation for creating competitive advantages in organizations. However, implementing knowledge management projects in an organization requires essential organizational changes. In this paper, success factors of knowledge management are extracted from literature review on papers represented between 1997 and 2009. Then the factors are categorized and effective factors in each group are determined. Results are finalized by a panel of experts in Iran and effective and critical success factors of knowledge management are determined for Iranian organizations. Final results show that from 12 effective success factors of knowledge management, four one's including knowledge strategy, management support, motivational encouragements and strong technical infrastructure are critical ones. It is obvious that continuous attention of management to these factors and appropriate investment are vital for the success of knowledge management in organizations.*

## Keywords

*Knowledge management, critical success factors, effective success factors*

## 1.0 INTRODUCTION

Knowledge management (KM) first introduced in industries and functional areas of organizations and R&D departments in 1980 and 1990. But today it is used in other industries such as manufacturing, financial services, military and public organization and also private organizations. Nowadays, KM is an

essential part of business activities in organizations and tied in their goals and objectives and considered as a tool for creating competitive advantages (Grover and Davenport, 2001). KM is a set of methods that are used by organizations to define, create, represent and distribute knowledge. Some benefits of KM are increment of performance, coordination, quality of service to customers and total productivity of organization. Three main reasons for measuring KM success are: create foundation for evaluating organization, stimulate manager to focus on what is important in organization and justification of investment in activities related to KM in organization. In addition to these cases, determining factors, components and variables important for KM success, are crucial to understand how to design and implement KM systems (Turban and Aronson, 2001). In fact, KM organizational readiness assessment is a response for two important questions: what is the current situation of KM in organization? What should be done to increase capabilities of KM in organization? Failure in this assessment will lead to loss of time and energy in face with organizational resistance to change. It is obvious that readiness assessment requires determining suitable indicators to assess KM. different papers have implied to these indicators from their own view. So, the aim of this paper is a comprehensive study of this subject and determining effective factors to assess KM situation in organization. For this purpose, in section 2 we introduce KM and related concepts, first. Then in section 3 effective factors of KM success are extracted from literature review. Finally, the factors are categorized in 4 groups and validated by a panel of experts in Iran. Results are shown in the form of table and EID<sup>8</sup> diagram.

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<sup>8</sup> Extended Influence Diagram

## 2.0 KNOWLEDGE MANAGEMENT AND RELATED CONCEPTS

Organizational knowledge and organizational memory can be used interchangeably (Jennex and Olfman, 2002; Alavi and Leidner, 2001). They both are information and knowledge repositories that should be acquired and maintained in organization. Also they are stored information from the past that can be used for current and future decision makings in organization (Walsh and Ungson, 1991). Knowledge is usually hidden in organization's documents, processes, activities, rules and norms. We can say that knowledge contains information but any information can't be knowledge. Also we can look for knowledge in organizational memory. There are a lot of expressions about knowledge, but the most important ones are tacit and explicit knowledge (Alavi and Leidner, 2001). Tacit knowledge is something that is in thoughts and minds of a person. That knowledge includes cognitive and technical parts. Cognitive parts are mental models that are used by person and can't be expressed directly through data and information. Technical parts are concrete concepts that are expressed easily. Explicit knowledge includes these technical parts presented in the form of information and knowledge. Knowledge management would happen in organization when these two forms of knowledge could be converted to each other. Information technology helps creating knowledge management system through providing knowledge repositories and methods for obtaining and retrieving knowledge (Jennex and Croasdel, 2005). However, today there is a lot of interest in knowledge management, but there is no single definition for it. Knowledge management helps to obtain, use, share and renew employees' tacit and explicit knowledge through organizational systematic processes in order to expand organizational performance and making value to it (Allee, 1997). Knowledge management can be defined as a selective use of knowledge from the past experiences in current and future decisions to improve organization effectiveness. Also knowledge management can be used for integration and management of organizational information technology and development of systematic information models (Liebowitz and Wright, 1999). Knowledge management can be categorized in two dimensions: one dimension is organization's current knowledge management that includes development of knowledge repositories (minutes, reports, seminars and papers), knowledge compiling, arrangement and classification. Other dimension is management of activities related to knowledge that include acquiring, providing, distributing, sharing and using knowledge (Stenmark, 2001). Knowledge management systems provide strategic potential for organization and act as a determinant resource. These systems are crucial to help key resources management and intellectual capitals of organization

in creating competitive advantages (Rao and Osei-Bryson, 2007) and considered as processes and information technology systems required for acquiring, storing and using produced knowledge in the past to make decisions for the future (Jennex and Olfman, 2006). Knowledge management systems are information technology based systems that are applied for development, expansion and supporting of organizational processes to provide, store, retrieve, transform and use of knowledge (Alavi and Leidner, 2001). Knowledge management projects usually follow one of these three objectives: 1) revelation of organization knowledge and displaying its role in organization. 2) Knowledge culture development by encouragement and integration of behaviors like knowledge sharing in organization. 3) Creating knowledge infrastructure used not only for technical system but also as a tool for connecting people and persuasion of collaboration and interoperation (Mohammadi et al., 2009). Nevertheless, knowledge can't be monitored and evaluated easily and organizations should manage their knowledge effectively to take full advantages of hidden knowledge in organization's systems, structures, and employees. Therefore, one of the most important concerns about knowledge management is how to implement it effectively.

## 3.0 KM SUCCESS FACTORS LITERATURE REVIEW

A successful KM system should do activities like providing, storing, retrieving, transforming and using knowledge successfully. But, there are other factors that influence KM success. Mandviwalla et al. (1998) categorized effective issues in designing KM system. These include:

- The focus of KM system (who are the users of KM system), The quantity of knowledge captured, who compile and filter the captured knowledge and limitations in using of organizational memory
- Effective technical issues include: knowledge storage and retrieval, how information and knowledge is organized so that it can be searched and used in particular events, processes for integrating various information repositories and for reintegration of information and knowledge extracted from special events
- Managerial issues include: how long the knowledge is useful, locations of access for users (network and security requirements), activities and processes that utilize the KM system

Jennex and Olfman (2000) studied three KM projects to determine the characteristics of successful KM system and identified

recommendations about designing the system. These recommendations include:

- Developing appropriate technical infrastructure by using a common network structure, adding KM skills to the set of technology support skills, and standardizing hardware and software in organization
- Linking KM system to organization's processes and information systems through automation of knowledge acquisition
- Enterprise-wide knowledge structure
- Management support
- Allocating resources for maintenance of organizational memory
- Training users how to work with systems
- Creating and implementing KM strategy and process for identifying and maintaining knowledge base
- Designing security into KM system
- Building motivation and commitment through linking KM system applications to personal evaluation processes
- Identifying organizational and cultural behaviors that could inhibit KM system usage

Jennex and Olfman (2002) performed longitude study of KM project in one organization that implemented KM system and founded that new employees of organization didn't use KM system because they didn't understand the knowledge and KM system. Davenport et al. (1998) studied 31 projects in 24 companies. Eighteen projects were determined successful, five were considered failures, and eight were too new to be rated. Some factors were determined in successful projects. These include:

- Senior management support
- Clear objectives and purposes
- Linkage to economic performance
- Multiple channels of knowledge transfer
- Motivational incentives and encouragements for KM system users
- Strong technical and organizational infrastructure
- Standard and flexible knowledge structure

Mahotra and Galletta (2003) surveyed users of KM system being implemented in a health care organization and identified the critical significance of user motivation and commitment. Ginsberg and Kambil (1999) specified key issues in designing and implementing KM system. These include: knowledge representation, storage, search, retrieval, visualization and quality control of key technical issues and incentives to share and use knowledge. Alavi and Leidner (1999) surveyed executive managers of KM system. Results showed that organizational and cultural issues accompanied with

user motivation to share and use knowledge had the most importance in KM system success. Besides, measuring KM system benefits and having integrated technical architecture that support databases, communications and search and retrieval operations were crucial. Holsapple and Joshi (2000) surveyed 31 experts and researchers in KM through the use of Delphi technique and extracted effective factors that influence the management of knowledge in organization. These factors include leadership and commitment of top management, financial support, skill level of employees and known knowledge sources in organization. Koskinen (2001) investigated 10 small technical companies and founded that utilization of tacit knowledge is the key success factor in these companies. Besides ability to define, acquire and transfer of tacit knowledge were crucial in KM system success. The key finding in this research was that new employees took a lot of time to learn tacit knowledge; and by using KM system, transfer of tacit knowledge to these employees was facilitated. Barna (2003) studied 6 project of KM with different levels of success and extracted 2 key factors: Managerial factors and designing factors. Managerial factors include creation and development of knowledge transferring and sharing culture in organization, rewarding knowledge sharing, developing CoPs and creating a knowledge base for best practices, attracting support of senior management, create learning organization, training about KM system and defining KM project's purposes. Success factors in designing and building KM system include approaching the problem from the view of organizational problem not a technical problem, creating the knowledge transfer process, developing of methodologies and processes to code KM system, documentation and storage of knowledge, development of techniques for acquiring and transforming of tacit knowledge to organizational knowledge and creating knowledge bases to facilitate access to knowledge. Cross and Baird (2000) studied 22 projects of KM and proposed that KM would not lead to improvement of business processes simply just by using required technologies for capturing and sharing knowledge. Organizational learning should increases through creating organizational memory. They studied 22 projects and concluded that improvement of organizational learning lead to success of KM. They identified Factors influence KM success that include supporting of employees communication, creating incentives for knowledge sharing, creating distributed data bases for knowledge storage, creating required processes to transform personal experiences to organizational knowledge and directing employees in identifying organization's required knowledge. Sage and Rouse (1999) identified critical success factors of KM as follows:

- Business process modeling to determine requirement and knowledge resources

- Using KM strategy to identify required knowledge and people using it
- Motivational incentives and rewards for knowledge sharing
- Developing an infrastructure to search, capture, retrieval an represent knowledge
- Identifying clear goals for KM system
- Evaluating and measuring effectiveness of KM system

Bixler (2002) developed a 4 pillar model to describe critical success factors of KM implementation. To achieve a basic entry level KM program, it has been determined that all that four pillars must be addressed. The 4 enterprise engineering pillars are leadership, organization, technology and learning in support of enterprise-wide KM initiatives. Also it is implied that technology wouldn't cover KM requirements alone. First, strategies, views and requirements of KM system should be defined and then necessary technologies applied to cover those requirements. Gartner Group addressed 10 technologies that collectively make up full function KM. The functional requirement that enterprises can select and use to build a KM solution include: "capture and store", "search and retrieve", "send critical information to individuals or groups", "structure and navigate", "share and collaborate", "synthesize, profile and personalize", "solve or recommend", "integrate with business application" and "maintenance" (Mathi 2004). Davenport (1997) specified critical success factors of implementing KM as leadership, performance measurement, organization's policy, capturing and sharing knowledge, information systems structure, benchmarking studies and training. Glasser (1999) pointed out that the success factors of KM include people, process and technology need to be balanced

in a 50/25/25 relation. People need to be the major focus with 50% of the time and budget of a KM implementation project while process and technology only need 25% each. Taylor and Wright (2004) introduced 6 key success factors. These include leadership, learning from failure, information quality, performance, change management and creating vision for change.

#### 4.0 CATEGORIZING AND VALIDATING SUCCESS FACTORS OF KM

In this section, success factors of KM will extract from literature review. Further, by constituting a panel of experts comprising 10 outstanding experts in KM field from faculty members of universities, extracted factors negotiate from their application in Iran. Experts agree that most of KM projects in country fail because of lack of allocating proper investment. So, the factor named "financial support" is added to the list of effective success factors of KM. table 1 show the final list of effective factors in KM success. Final factors are named effective success factors. From these factors, four ones introduced as critical success factors. These factors are selected based on panel of expert's opinion. Besides, references implied to them are more than others. These factors are: knowledge strategy, management support, motivational encouragements to share knowledge, suitable technical infrastructure. After determining and validating the effective and critical factors, they are grouped in 4 categorizes including management and strategy, culture, organization and technology. The panel of experts validated the relatedness of factors and their components.

Table 1: KM effective and critical success factors

| component               |   | factors              | Number of experts who agree | description  | sources  |
|-------------------------|---|----------------------|-----------------------------|--|--|
| Management and strategy | 1 | * Knowledge strategy | 10                          | Determining users and resources of knowledge, knowledge acquisition and usage processes, knowledge vision and objectives | (Mandviwalla et al. 1998) (Jennex and Olfman 2000) (Davenport et al. 1998) (Barna 2003) (Sage and Rouse 1999) (Bixler 2002) (Mathi 2004) (Davenport 1997) (Glasser, 1999) (Taylor and Wright 2004) |
|                         | 2 | * Management support | 10                          | Support of management include allocating resources, directing and training   | (Ruikar et al. 2006) (Jennex and Olfman 2000) (Davenport et al. 1998) (Holsapple and Joshi 2000) (Barna 2003) (Bixler 2002) (Mathi 2004) (Glasser, 1999) (Taylor and Wright 2004)                  |

| component    |    | factors                          | Number of experts who agree | description  | sources  |
|--------------|----|----------------------------------|-----------------------------|--|--|
|              | 3  | Performance measurement          | 9                           | Evaluating effects of KMS and its usage, determining the effectiveness of knowledge  | Alavi and Leidner 1999) (Sage and Rouse 1999) (Mathi 2004)   |
| organization | 4  | Organizational structure         | 9                           | Clear Organizational structure with determined communications and procedures   | (Jennex and Olfman 2000) (Davenport et al. 1998) (Bixler 2002)   |
|              | 5  | Organizational learning          | 8                           | Learning from best practices form inside and outside of organization   | (Barna 2003) (Cross and Baird 2000) (Bixler 2002) (Glasser, 1999) (Taylor and Wright 2004)   |
|              | 6  | Financial support                | 9                           | Financial ability of organization in supporting KM processes   | Based on panel of expert opinion   |
| culture      | 7  | Organizational culture           | 9                           | Appropriate organizational culture to learn and share knowledge  | (Jennex and Olfman 2000) (Alavi and Leidner 1999) (Barna 2003) (Mathi 2004)  |
|              | 8  | *Motivational encouragements     | 10                          | Creating motivation and commitment in users of KMS with rewarding of knowledge sharing and promptings related to their capabilities  | (Jennex and Olfman 2000) (Davenport et al. 1998) (Malhotra and Galletta 2003) (Ginsberg and Kambil 1999) (Alavi and Leidner 1999) (Barna 2003) (Cross and Baird 2000) (Sage and Rouse 1999)    |
|              | 9  | communications and group working | 8                           | Encouraging knowledge creation groups(CoPs),   | (Koskinen 2001) (Barna 2003) (Cross and Baird 2000)  |
| technology   | 10 | *Technical infrastructure        | 10                          | Integrated Technical infrastructure including network, data bases organizational memory, required software and hardware to implement KMS   | (Mandviwalla et al. 1998) (Jennex and Olfman 2000) (Davenport et al. 1998) (Ginsberg and Kambil 1999) (Barna 2003) (Cross and Baird 2000) (Sage and Rouse 1999) (Bixler 2002) (Davenport 1997) |
|              | 11 | Integration of Operations        | 7                           | Integration of search, retrieve and represent of knowledge operations, link KMS to organizational processes and information systems, integration knowledge with business application | (Mandviwalla et al. 1998) (Jennex and Olfman 2000) (Davenport et al. 1998) (Alavi and Leidner 1999) (Koskinen 2001) (Barna 2003) (Mathi 2004)  |
|              | 12 | security                         | 8                           | Designing security of KMS  | (Mandviwalla et al. 1998) (Jennex and Olfman 2000)   |

\*Critical Success Factor

In following diagram, components and success factors of KM are shown by EID diagram. EID is used to access document concepts. In fact, EID means a network that is used to model

Variables and decisions. By using EID we can see how decisions can influence entire goal (Lagerstrom et al., 2006).

## 5.0 CONCLUSION

In this paper critical and effective success factors of KM were extracted. For this purpose, different valid papers in 14 recent years were studied. Each paper introduced factors of KM success based on its own objectives and its own country circumstances. With regards to different conditions of Iran, extracted factors from literature review validated by

Iranian experts and 4 factors were introduced as critical success factors of KM in Iranian companies. Experts agreed that most of KM projects in Iran fail because of the lack of allocating proper investments. So, financial support introduced as an important effective factor in KM success. Based on the negotiations of experts to improve current situation of KM in Iran, it's proposed that in first step, KM and its benefits should be represented to managers to attract their support in organization. In second step, KM should be employed in strategic program

of organization. Besides, implementing the projects of KM should be accompanied with reward and motivational systems to facilitate knowledge sharing and create proper organizational culture. In future study, the readiness of an Iranian organization as a case study will be measured by the achieved factors of this paper.

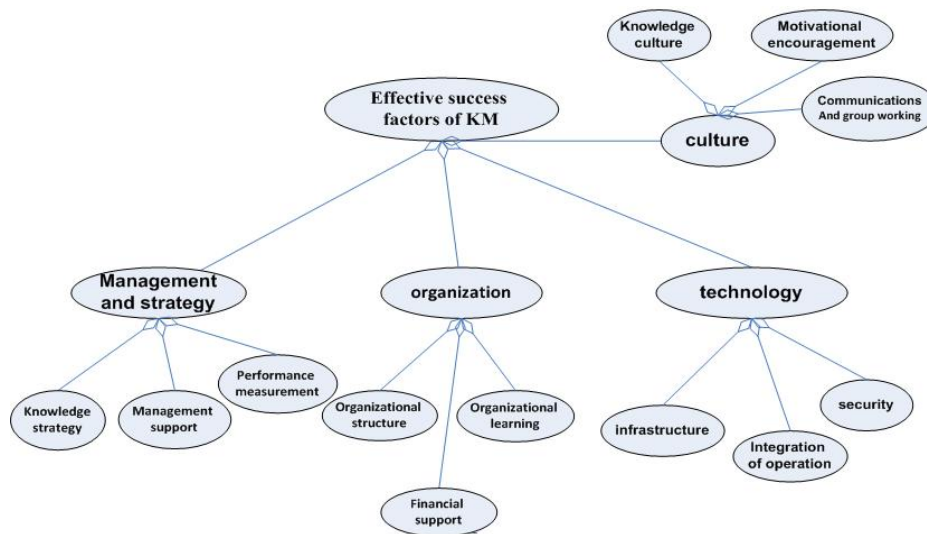


Figure 1: EID of effective success factors of KM

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