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Identification and Ranking of Factors in Successful Implementation of Knowledge Management in Türkiyeiş Bankası: An AHP Approach

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ABSTRACT

Today the biggest goal of organizations is to define and introduce an effective knowledge management system (KMS). The purpose of this research was to identify and rank the factors in successful implementation of KMS in Türkiyeiş Bankası using AHP. This study was a descriptive survey. The population consisted of all the branches of Türkiyeiş Bankası in Ankara during the first half of 2015. Data were collected using a researcher-made questionnaire with a Cronbach's alpha of 0.892 and were analyzed in Expert Choice using the AHP technique. The results indicated that strategy, senior management support,organizational infrastructure, incentives, human resource management, culture, administrative processes, and employee involvement were respectively the most important KM success factors.

Keywords: Knowledge management system, banks, AHP.

INTRODUCTION

Knowledge and organizational capabilities are strategic assets that help in achieving the long-term goals of the organization (Lopez, 2005). Converting tacit knowledge into explicit knowledge is a key objective in knowledge management (KM),which reduces the risk of losing valuable knowledge due to retirement or resignation as well as the risk of losing organizational memory due to turnover. According to Malhotra (1998),"Knowledge management caters to the critical issues of organizational adaptation, survival, and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information-processing capacity of information technologies, and the creative and innovative capacity of human beings."

Bukowitz and Williams (1999) defineKMas the process by which the organization generates wealth from its intellectual or knowledge-based assets.According toRowley (2000), there are four key KM objectives:

1. Creating and maintaining knowledge repositories;
2. Improving knowledge access;
3. Enhancing knowledge environment; and
4. Valuing knowledge.

Many organizations are making large investments inKM to improve their competitive ability(Shih and Chiang, 2005). The main challenge lies in understanding KM and how to implement it within a knowledge management

system (KMS), but the functions and definitions of KMS are not yet clear (Markus, 2001).It can be argued that lack of a clear understanding of factors that affect KM is the most important reason for failure in KMS implementation. Through KM, managers try to extract and collect knowledge and make it accessible to others. Extensive research has shown that core competences and competitive ability are embedded in the knowledge of organization's members. However, KM is a challenging process, since addressing its value to the individual knowledge worker is difficult (Huysman and Wulf, 2006).

Ann Macintosh of the Artificial Intelligence Applications Institute has identified the following reasons for the importance of knowledge management to creating competitive advantage:

1. The marketplace is increasingly competitive and the rate of innovation is rising, so that knowledge must evolve and be assimilated at an ever faster rate.
2. Staff functions are being reduced and there is a need to replace the informal knowledge management of the staff function with formal methods.
3. Competitive pressures are reducing the size of the workforce which holds this knowledge.
4. Knowledge takes time to experience and acquire. Employees have less and less time for this.
5. There are trends for employees to retire earlier and for increasing mobility, leading to loss of knowledge.
6. Knowledge takes time to experience and acquire. Employees have less and less time for this (Wiig, 1997).

In the past, banks, especially those in developing countries, were operating in a relatively stable environment without significant competitive pressure. However, by entering the knowledge-based economy, banks are faced with increasing competition in the banking industry and the money market. Knowledge and experience have become key assets in this industry, as banks are recognizing the importance of KM for the success and survival of firms in the competitive business environment.

Turkey is a developing country faced with challenges such as underperformance and low public investment. Knowledge management can play a critical role insolving these problems. The purpose of this research is to identify and rank the factors in the successful implementation of KM in Turkish banks using the AHP technique.

Review of the Literature

A number of scholars were critical to the evolution of knowledge management, including Peter Drucker, Paul Strassmann, and Peter Senge. Drucker and Strassmann have stressed the increasing importance of information and explicit knowledge as organizational resources, and Senge has focused on the "learning organization" as a cultural dimension of managing knowledge.Chris Argyris, Christopher Bartlett, and Dorothy Leonard-Barton of Harvard Business School have examined various aspects of KM (Middleton, 2002).

In the 1990s, a number of management consulting firms began in-house KM programs and several well-known U.S., European, and Japanese firms instituted focused KM programs. Knowledge management was first introduced in the popular press in 1991 by Tom Stewart in an article titled "Brainpower" in Fortune Magazine.

According to Holsapple and Joshi (2001), the authority to perform knowledge activities is an important factor in successful implementation of KM. Power is often used interchangeably with the term authority. However, their meanings differ. While "power" refers to the ability to achieve certain ends, "authority" refers to a claim of legitimacy, justification and right to exercise that power by the employees of the organization. Employees are the hub of creating knowledge,because knowledge is kept within the individual (Holsapple and Joshi, 2001).Therefore, it is crucial to motivate them to create and share their knowledge but the most important thing for their motivation towards knowledge management is the way to let them authorize in order to share, utilize, and then convert data into information and information into knowledge within the organization.

Park,Ribière, andSchulte (2004) carried out a research to identify and rank the most critical organizational culture attributes that promote knowledge sharing and KM technology implementation success.Data were collected from 26 US organizations that were implementing KM. The results revealed a correlation between specific cultural attributes and the successful implementation of knowledge management technology and knowledge sharing.

Svetlikand Stavrou-Costea (2007)examined the benefits of using an integrative approach between human resource management (HRM) and KM. They found that HRM and KM have much in common and that innovation process could be facilitated if HRM and KM are linked within organizations.

Eidand Nuhu (2011) examined the impact of learning culture and information technology use on knowledge-sharing in Saudi universities. They found a significant positive relationship between learning culture, IT use, and knowledge sharing.

Given the benefits of KM, numerous studies have provided lists of KM success factors. Wong and Aspinwall (2005) proposed a comprehensive model for implementing KM in SMEs based on the following 11 factors: management leadership and support; culture; IT; strategy and purpose; measurement; organizational infrastructure; processes and activities; motivational aids;and resources. Davenport andPrusak (1998)found eight success factors that influence KM projects: a link to economicperformance or industry value; technical and organizational infrastructure; standard andflexible knowledge structure; knowledge-friendly culture; clear purpose and language;change in motivational practices; multiple channels for knowledge transfer; and seniormanagement support. Ryan andPrybutok (2001) proposed five KM success factors: an open organizational culture; senior management leadership and commitment; employeeinvolvement; teamwork; and information system culture. Moffett et al. (2003) and Chong and Choi (2005) have also proposed models for successful KM implementation.

Chourides et al.(2003)argue that to successfully implemented KM, organizations must ensure that members are familiar with KM-related concepts. According to Nonaka and Takeuchi (1995), a key factor for success in any KM-related activity is encouraging employees to interact and share their knowledge with others.Alavi and Leidner (2001) showed thatincentives for KM efforts plays an important role in the success of KM.

MATERIALS AND METHODS

This research was a descriptive survey, carried out in the first half of 2015. The population consisted of all the branches of TürkiyeişBankası in Ankara (N = 127). Ankara was divided into four parts, and four branches were randomly selected from each part. From each branch, four employees (managers and experts with highest academic degree and experience) volunteered for the study (N = 64).

Data were collected using a questionnaire that consisted of two section. The first section recorded the demographic data (i.e. gender, position, experience, and education). The second section included a paired comparison part for the identified factors (i.e. strategy, senior management support, organizational infrastructure, incentives, human resource management, culture, and administrative processes) and a part where the components of each factor were compared pairwise.This questionnaire is developed to identify and rank the factors in successful implementation of KM in Turkey. It uses the AHP technique which is based on pairwise comparisons.

The face validity of the instrument was evaluated a panel of experts and it was modified based on their comments. Cronbach's alpha was used to examine the reliability of the questionnaire. The questionnaire was distributed among 30 randomly selected bank employees and the data were analyzed in SPSS. An alpha of 0.892 was obtained, indicating a high reliability.

The analytic hierarchy process (AHP) was used as a multi-criteria decision-making method. AHP is one of the most effective techniques for organizing and analyzing complex decisions. It was developed by Thomas L. Saaty in the 1970s and is based on pairwise comparisons.Since the views of bank employees are not similar and are a function of various factors such as experience, position, and education, a weight was assigned to their responses: a weight of 1 for experience, a weight of 2 for education, and a weight of 3 for position.

RESULTS

Figure 1 shows the priority of KM success factors from the perspective of TürkiyeişBankası. The data show that strategy is the most important KM success factor (W = 0.272), followed by senior management support (W = 0.225), organizational infrastructure (W = 0.139), incentives (W = 0.124), human resource management (W = 0.096), culture (W = 0.074), administrative processes (W = 0.063), and employee involvement (W = 0.007).

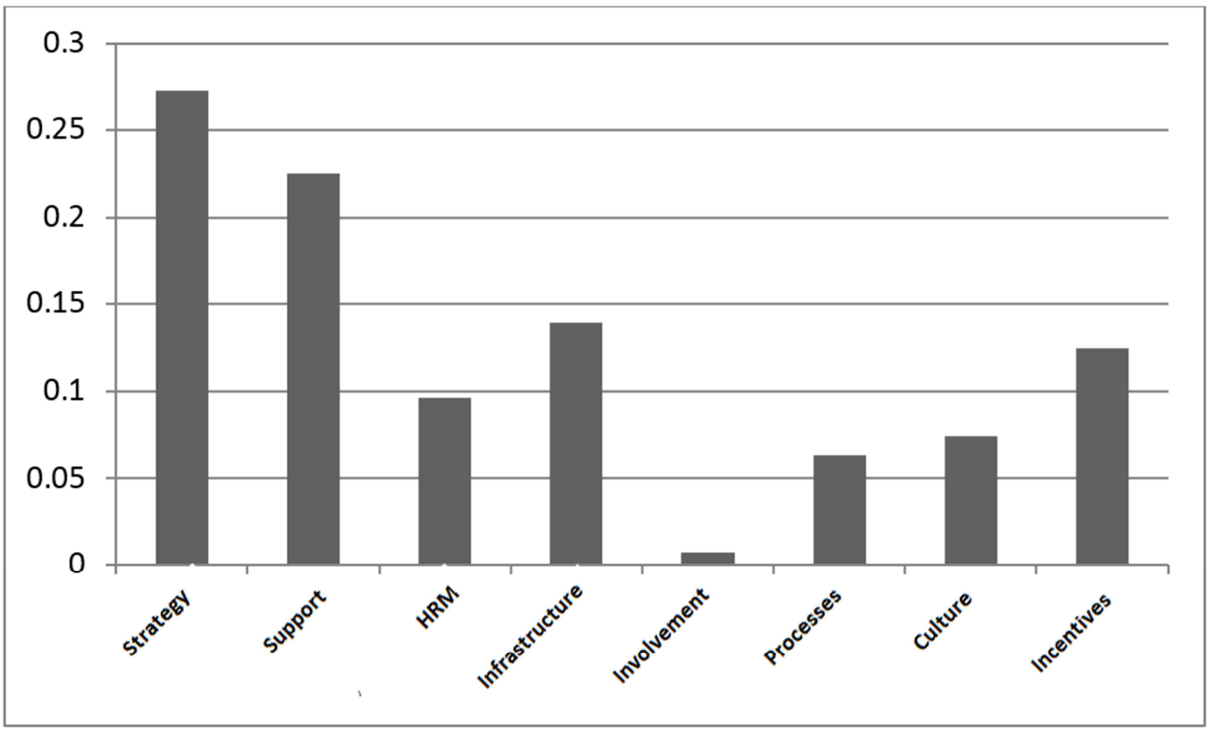

Figure 1.Ranking of KM success factors

The incompatibility rate ($\lambda_{max}W$) is calculated based on the following steps:

Step 1. Estimating $\lambda_{max}W$:

$$\begin{bmatrix} 1 & 3.55 & 2.72 & 2.8 & 1.92 \\ 0.28 & 1 & 1.1 & 1.1 & 1 \\ 0.37 & 0.91 & 1 & 1.2 & 1 \\ 0.36 & 0.91 & 0.83 & 1 & 1.22 \\ 0.52 & 1 & 1 & 0.82 & 1 \end{bmatrix} \times \begin{bmatrix} 0.407 \\ 0.169 \\ 0.156 \\ 0.138 \\ 0.130 \end{bmatrix} = \begin{bmatrix} 2.07 \\ 0.74 \\ 0.64 \\ 0.73 \\ 0.78 \end{bmatrix}$$

Step 2. Calculating λ_{max}:

$$\lambda_{max1} = \frac{2.07}{0.407} = 5.09$$
$$\lambda_{max2} = \frac{0.74}{0.169} = 4.38$$
$$\lambda_{max3} = \frac{0.64}{0.156} = 4.1$$
$$\lambda_{max4} = \frac{0.73}{0.138} = 5.29$$
$$\lambda_{max5} = \frac{0.78}{0.13} = 6$$

Step 3.Calculating mean λ_{max}:

$$\frac{\lambda_{max1} + \cdots + \lambda_{max5}}{5} \rightarrow \frac{5.09 + 4.38 + 4.1 + 5.29 + 6}{5} = 4.97$$

Step 4. Calculating incompatibility index (II):

$$II = \frac{\lambda_{max} - n}{n - 1} \rightarrow \frac{4.97 - 5}{5 - 1} = \frac{-0.03}{4} = 0.01$$

Step 5. Calculating incompatibility index (IR):

$$IR = \frac{I.I.}{I.I.R._{5\times5}} \rightarrow \frac{0.008}{1.12} = 0.001$$

The incompatibility rate is less than 0.01, indicating the consistency of the responses. Incompatibility rates higher than 0.1 suggest that the paired comparisons must be reconsidered.

In terms of the components of each factor, the results were as follows:

- **Strategy:**The most important component was strategy and purpose (W = 0.411), followed by strategic focus (W = 0.301) and strategy alignment (W = 0.288).
- **Senior management support:** Theinitiator role of senior management was the most important component (W = 0.393), followed by the promoter role (W = 0.378) and the sponsor role (W = 0.229).
- **Human resource development:**The most important component was development opportunities (W = 0.493), followed by knowledge sharing culture (W = 0.287) and employee retention (0.2220).
- **Organizational infrastructure:** The most important component was clear roles and tasks (W = 0.615), followed by teamwork (0.247) and knowledge leadership (0.138).
- **Employee involvement:** The most important factor was employee skills (W = 0.379), followed by KM capability (W = 0.319) and technical capability (W = 0.302).
- **Administrative processes:**Product/service knowledge was the most important factor (W = 0.301), followed by knowledge sharing (W = 0.269), knowledge discovery (W = 0.222), and documentation (W = 0.208).
- **Culture:** Trust was the most important factor (W = 0.618), followed by cooperation (W = 0.256), empowerment (W = 0.091), and knowledge transfer (W = 0.035).
- **Incentives:**The most important factor was tangible reward (W = 0.451), followed by group-based reward (W = 0.319) and performance evaluation (W = 0.230).

Finally, a consolidated matrix was created from the scores of all the factors and components, and the components were ranked. Table 1 shows that strategy and purpose have the greatest effect on KM success in TürkiyeişBankası.

Table 1. Ranking of factors and components along with their relative weights

Factor	Factor Wight	Component	Group Weight	Final Weight	Rank
Strategy	0.272	Strategic focus	0.301	0.099	2
		Strategy and purpose	0.411	0.107	1
		Strategy alignment	0.288	0.061	6
Senior management support	0.225	Initiator	0.393	0.093	3
		Promoter	0.378	0.073	5
		Sponsor	0.229	0.059	7
Human resource management	0.096	Knowledge sharing culture	0.287	0.036	13
		Employee retention	0.220	0.018	17
		Development opportunities	0.493	0.043	10
Organizational infrastructure	0.139	Knowledge leadership	0.138	0.039	11
		Teamwork	0.247	0.056	8
		Clear roles and tasks	0.615	0.089	4
Employee involvement	0.007	Skills	0.379	0.009	20
		Technical capability	0.302	0.001	26
		KM capability	0.319	0.006	23
Administrative processes	0.063	Documentation	0.208	0.004	24
		Knowledge discovery	0.222	0.007	22
		Knowledge sharing	0.269	0.010	19
		Product/service knowledge	0.301	0.013	18
Culture	0.074	Trust	0.618	0.031	14
		Cooperation	0.256	0.028	15
		Empowerment	0.091	0.008	21
		Knowledge transfer	0.035	0.003	25
Incentives	0.124	Tangible reward	0.451	0.049	9
		Group-based reward	0.319	0.037	12
		Performance evaluation	0.230	0.021	16

DISCUSSION AND CONCLUSION

The purpose of this research was to identify and rank the main KM success factors using the AHP technique. The identified factors were as follows: strategy, senior management support, organizational infrastructure, incentives, human resource management, culture, and administrative processes.These factors are similar to those identified in the literature (e.g.Alavi and Leidner, 2001; Chourides et al., 2013; Ahmad et al., 2011).

According to the respondents, the most important factor was strategy (W = 0.272), followed by senior management support (0.225), organizational infrastructure (W = 0.139), incentives (W = 0.124), human resource management (W = 0.096), culture (W = 0.074), administrative processes (W = 0.063), and employee involvement (W = 0.007). This is consistent with the results of Salehi et al. (2012), which showed that strategy was the dominant KM success factor.

Moreover, the ranking of components in the order of importance was as follows: strategy and purpose, strategic focus, initiator role, clear roles and tasks, promoter role, strategy alignment, sponsor role, KM team, tangible reward, development opportunities, knowledge leadership, group-based reward, knowledge sharing culture, trust, performance evaluation, employee retention, product/service knowledge, knowledge sharing, skills, empowerment, knowledge discovery, KM capability, documentation, knowledge transfer, and technical capability. Therefore, strategy and purpose seems to have the greatest effect on KM success.

Overall, the results showed that all the identified factors significantly affect successful implementation of knowledge management inTürkiyeişBankası, albeit to varying degrees. The present findings can help managers and employees of public and private banks in their KM efforts.

Implications for Practice

1. Focusing on the five most important KM success factors can significantly facilitate KM implementation in TürkiyeişBankası.
2. Having strategy and purpose is crucial to successful KM implementation. These should be well-defined and carefully adhered to.
3. Senior management in TürkiyeişBankası must play its initiator, promoter, and sponsor roleseffectively. Also clearly defined roles and tasks is a critical factor.Moreover, these factors can contribute to employee productivity.
4. In banks where knowledge sharing is of special importance, implementing these factors will ensure better services and facilitate learning, education, and research.
5. Well-defined strategy and purpose and extensive senior management support can play a remarkable role in KM implementation.
6. Without effective and efficient KMS, it is impossible to achieve and maintain a leading positions in the increasingly competitive banking industry.

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