

Investigating and Prioritizing Effective Factors in Establishment and Implementation of Knowledge Management (Case study: Ava Teflon Corporates, Markazi province)

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Abstract

The present study has been conducted with the aim of "investigating and prioritizing the factors affecting the establishment and implementation of knowledge management in Ava Teflon corporates" by a descriptive-survey method. The statistical population of the research included 202 employees of Ava Teflon corporates selected by simple random sampling method. Using Cochran's formula, 133 people have been selected as the sample. Subsequently, the data were collected using the structural equation method and analyzed by spss22 and Lsrel 8.80 software. The results showed that the support of senior management, organizational culture, employee motivation, perceived benefits, complexity and competitive pressure on the establishment and implementation of knowledge management had positive effects. Out of the six hypotheses of the research, five hypotheses were confirmed and one hypothesis was rejected; also, the results showed that senior management support was the most important factor and motivation of employee was the least effective variable in terms of respondents. In this research, an appropriate conceptual model was influenced by the factors affecting the establishment and implementation of the knowledge management system in Ava Teflon corporates. According to the conceptual model presented in this research, the factors affecting the establishment and implementation of knowledge management include the dimensions of organizational factors (management support, organizational culture and employee motivation), technology innovation (perceived benefits and complexity) and environmental factors (competitive pressure). The overall results of the present study showed that the personnel employed in Ava Teflon corporates have the most effect on the perceived benefits and the least effect is due to competitive pressure.

Keywords: Knowledge management, establishment and implementation, Ava Teflon corporates, organizational culture, employee motivation, competitive pressure

Introduction

Nowadays, organizations believe in the vital role of knowledge in achieving the competitive superiority and attempt to maintain the values of knowledge assets systematically by applying the modern systems in order to reach the desired strategic goals and improve the organizational

performance (Wang, 2016). Individuals do not perform the tasks in projects based upon new trends and processes usually defined by the organization experts (Ekrami, 2015).

They prefer doing the responsibilities according to their own experiences regarded as task bases. To achieve the competitive advantage at a large scale, the knowledge management has been identified as an effective approach with the aim of contributing to the organizational development and reaching the competitive advantage through systematic management of intellectual property (Hassani Tavabe et al., 2013).

On the other hand, the need to knowledge and information is increasing in companies and organizations so that Takenchi (1998) introduced the knowledge management as the success secret of organizations in third millennium (Azimi-Pour, 2014). Knowledge management is considered a systematic and united approach to identify, manage and share all the information assets of various organizational units involving the databases, documents and procedures which have not been professionally separated and have remained as the staff experiences (Ahmadi, 2016).

At the beginning of third millennium, academic educational systems have addressed the establishment of knowledge management systems to obtain high quality of education and research, provide the specialized services and maintain the competitive advantage due to the impact of such elements as globalization, knowledge-based economy, and expansion of information and communication technologies and increase of student population (Takenchi, 1998). Knowledge management has been defined as a combination of knowledge-based systems, artificial intelligence, software engineering, human resources management, and organizational behavior concepts (Hosseini, 2015). In terms of human resources expansion in an organization, the role of managers is of considerable importance; from this viewpoint, their attitude towards knowledge and their belief in the importance and impact of knowledge on staff fate and in total, the organizational culture based on the general theory of systems directly affect the kind of attitude, behavior, and culture of all organizational levels (Wong, 2005). Therefore, before implementing the policies or strategies focused on knowledge development, public security must be considered. Thus, a group of information technology consultants plays a critical role and has the burden of management development based upon the various structures and procedures. One of the most important knowledge management sections is the knowledge transfer to suitable individuals while establishing knowledge in a place where it is needed.

Today, knowledge has been changed to a key source on which the organizational survival directly or indirectly depends. A variety of factors such as organizational culture and structure, technology, leadership and learning can affect the knowledge management establishment (Bahadorani, 2015). Yaghobi and Maleki (2012) mentioned such elements as information systems and information and communication technologies as basic indices of knowledge management success from the aspect of technology (Hooshmand, 2013).

Yang et al. (2014), have referred to information and communication technologies and organizational culture and structure as main elements of knowledge management success (Hosseini et al., 2015). According to Sharifzade and Bolaei (2015), organizational structure plays a determinant role in knowledge management establishment. According to Egbu (2014), the success of knowledge management implementation depends on information technology system in the organization.

Yaghobi and Maleki (2015), have determined information systems, and information and communication technologies as major factors in knowledge management success from the perspective of technology. Wang and Wang (2014), mentioned information and communication technologies, organizational structure and culture as three success elements in organizations.

Elena Kruchkova (2018), in a research on knowledge management of corporates in recession conditions described the approaches, defined responsibilities centers of knowledge management, distinguished the related features and presented specific procedures and knowledge management tools. Shojaat (2018), investigated the impact of knowledge management processes on knowledge-based innovation and concluded that knowledge workers productivity is of significant role which is the most important challenge concerning knowledge-based innovation in the management field in twenty-first century. Knowledge management implementation depends upon the existence of required resources like financial support to invest in new technologies and necessary sources for managing and synchronizing the processes.

Ava Teflon corporates need to share knowledge and use efficient methods due to their relation to families and customers to present high quality goods and reduce the costs of purchasing and meeting customers' needs; it requires the utilization of new information management ways and knowledge

management system establishment. Lack of knowledge management establishment in the mentioned corporates can result in the decreased motivation and employee job satisfaction followed by the decreased efficiency and effectiveness of products. On the other hand, loss of knowledge management system may prevent from the creation of professional intelligent networks of knowledge sharing, leave of specialized forces, decrease of innovation and creativity and weakening of participation and teamwork spirit.

Despite the research attempts on knowledge management, no research has been conducted on knowledge management establishment in Ava Teflon corporates. Currently, the corporate is not aware of knowledge management among the employees and the contribution of such elements as management support, organizational structure and knowledge management establishment is not clear. Accordingly, this research aims to investigate the knowledge management condition and its establishment effective factors in Central Ava Teflon corporate. The study can help the managers and the planners in production line understand the elements and variables leading to knowledge creation, knowledge sharing and knowledge-based employee management. In this regard, the research is to answer the following question.

What are effective factors in knowledge management establishment and implementation?

Which factors are of more effect on knowledge management establishment and implementation?

Method

Current research is an applied research using a scientific descriptive method. Descriptive research addresses objective and actual descriptions, regular events, and different subjects. Research information and data have been collected by library and field methods. Applied tool in this study is the questionnaire. It is necessary to specify the variables to answer the research questions and examine the hypotheses. In this research, variables include senior management support, organizational culture, employees motivation, perceived benefits, complexity and competitive pressure.

2.1 Research Variables

To answer the research questions or examine the hypotheses, it is essential to determine the research variables. In this research, variables include senior management support, organizational culture, employees motivation, perceived benefits, complexity and competitive pressure.

2.2 Statistical Population

Population involves all the elements that belong to a predefined group and sample involves some sets of population, which have been gathered during the research. Although the investigation of population is sometimes impossible due to its wide breadth, the study of all the desired elements gives more comprehensive and accurate information. Thus, determining the statistical population is regarded as one of fundamental principles in every research. Regarding the research aim presented as the investigation and prioritization of effective factors in establishing and implementing knowledge management (Ava Teflon corporates), research population involves all the employees in Ava Farjam, Paliz, Parab and Tak Jam corporates in October, 2017. In total, it includes 202 employees.

2.3 Sample and Sample Volume Determination

Statistical sample involves a limited number of individuals indicative of basic features of statistical population (Khaki, 2004). In fact, sampling is to select a part of community as the representative and since studying all the members is time and cost consuming, sampling has to be done (Moghimi, 2001). If the community volume is high in a way that studying all the members is impossible, few members will be selected as a sample and the results will be generalized for the whole community. Random sampling method has been used in the research and led to collect information in relation to the members (Sekaran, 2005). According to Cochran's formula, the sample volume was estimated 133 individuals for a limited community at 0.05 error level, and 0.05 estimation accuracy.

$$n = \frac{202 \times (1.96)^2 \times (0.5) \times (0.5)}{(0.05)^2 \times (201) + (1.96)^2 \times (0.5) \times (0.5)} = 132.61 \approx 133$$

$$n = \frac{NZ^2 \frac{\alpha}{2} * p(1-p)}{\varepsilon^2(N-1) + Z^2 \frac{\alpha}{2} * p(1-p)}$$

Finally, with respect to the conducted investigations and guidance of professors and consultants, 133 individuals have been selected as the sample out of 202 employees.

To sample the employees, a group sampling method was applied. To simulate the desired population, increase the sampling accuracy in parameter estimation, and enter the population features into the sample, statistical population has been first divided into homogeneous groups with similar characteristics. Afterwards, number of samples has been specified for each group and by simple random sampling method, number of required elements has been given.

2.4 Data Collection Methodology

Research data and information have been gathered by library and field methods. Questionnaires have been used as a research tool. The researchers collected necessary data by the questionnaires and field researches.

2.5 Data Analysis

In this study, to analyze data, descriptive and inferential statistics techniques were utilized. Questions in the questionnaires have been regulated based on five degrees Likert scale (totally agree, not sure, somewhat disagree, totally disagree). It has been tried to present the sample features by graph and tables using descriptive statistics. Considering the research aim, the interaction of variables was addressed by the use of structural equation test.

2.6 Structural Equation Model Analysis with 8.80 LISREL Software

One of the strongest and most appropriate analysis methods in social sciences and behavioral sciences research is the multivariate analysis because the nature of such subjects is multivariate and cannot be solved with two-variable methods which consider only one independent variable with one dependent one. One of promising methods is structural equation model (SEM) or multivariate analysis as well as latent variables. Multivariate analysis refers to a series of analysis methods with basic features including concurrent analysis of independent variable N and dependent variable K. Analysis of covariance structures or SEM is one of the most fundamental methods to analyze the complicated data structures. Therefore, since there are few independent variables as one main variable in this research and their impact on the dependent one should be reviewed, the application of SEM is necessary. SEM is a statistical population approach to test the hypotheses on the interactions between the observed and latent variables. Out of 133 individuals, 85 and 48 employees are male and female, respectively.

Findings

Table 1. Frequency distribution of respondents based on sex

No.	Sex	Frequency	Frequency percent
1	Male	85	63.9
2	Female	48	36.1

Out of 133 individuals, 2 and 46 people had under diploma and diploma degrees, 45, 27 and 13 people had associate, bachelor's and MSc degrees, respectively.

Table 2. Frequency distribution of respondents based on education

No.	Educational level	Frequency	Frequency percent
1	Under diploma	2	1.5
2	Diploma	46	34.6
3	Associate degree	45	33.8

4	Bachelor's	27	20.3
5	MSc's	13	9.8
Sum		133	100

Table 3. Relative distribution of respondents based on job unit

No.	Job experience	Frequency	Frequency percent
1	5 years and less	83	62.5
2	6-10 years	36	27.1
3	11-15 years	6	4.5
4	16-20 years	8	6
Sum		133	100

Investigation and prioritization of effective factors in establishing and implementing knowledge management have studied six main hypotheses. Research population involved all the staff employed in Ava Teflon corporates estimated as 202 individuals. Statistical sample was 133 employees according to Cochran's formula using the stratified random sampling method. The questionnaires included personal information of respondents in the first part and "effective factors in establishing and implementing knowledge management" in the second part. Using Cronbach's alpha method, the questionnaire reliability has been confirmed. In Chapter 4, the interactions of variables were assessed using SEM.

One of research hypotheses mentions that senior management support has a positive impact on knowledge management establishment and implementation. According to the results, it can be stated that senior management support has a positive impact on knowledge management establishment and implementation and H_1 has been confirmed; the increase or decrease of senior management support enhances or reduces the knowledge management establishment and implementation in the desired corporates.

In another hypothesis, complexity has a negative impact on the knowledge management establishment and implementation. According to the results, it can be stated that complexity has a positive impact on the knowledge management establishment and implementation so that H_2 has been rejected. In this respect, the increase or decrease of complexity enhances or reduces the knowledge management establishment and implementation in the desired corporates.

Third hypothesis refers to the positive impact of competitive pressure on knowledge management establishment and implementation. According to the results, it can be stated that competitive pressure has a positive impact on the knowledge management establishment and implementation so that H_3 has been confirmed. In this regard, the increase or decrease of competitive pressure enhances or reduces the knowledge management establishment and implementation in the desired corporates.

Discussion and conclusions

Nowadays, in knowledge-based economy, knowledge has been paid attention as the most important organizational property leading to the competitive superiority. Ava Teflon corporates is capable of using knowledge effectively by the means of united resources and knowledge bases. In the research, it has been tried to present a suitable conceptual model consisting of effective factors in knowledge management establishment and implementation in Ava Teflon corporates. With respect to the presented conceptual pattern, the effective factors involve organizational factors (management support, organizational culture and employee motivation), innovation in technology (perceived benefits and complexity) and environmental elements (competitive pressure). So far, a few studies have been conducted in this regard in different organizations while referring to the effective factors. Given that the products are designed based upon the customer orders in the mentioned corporates, there will be several challenges in this respect and managing the staff experiences and organizational memory is more likely to be difficult.

Thus, it can be expected that with the knowledge management establishment and implementation in these corporate, more efficiency and productivity are going to be witnessed while facing the problems. Research results have indicated that from the viewpoint of staff, the most impact belongs to perceived benefits and the least one is associated with competitive pressure. From the viewpoint of prioritizing

the factors from the most to least important ones, they were put as senior management support, perceived benefits, organizational culture, competitive pressure, complexity and employee motivation. Current research results are in accordance with those reported by Romiani (2016), Glauber (2016), Wang and Wang (2016), Asish (2015), Hosseini et al. (2015), Rezaee et al. (2014), Shafahi (2014), Hoshidar et al. (2014), Najaf Beigi et al. (2011), Val Mohammadi (2010) and Wong and Aspinwall (2005).

It has been discussed that organizational culture is of positive impact on knowledge management establishment and implementation and according to the results, it was confirmed. Its increase or decrease will enhance or reduce knowledge management establishment and implementation in the mentioned corporates.

The result is in accordance with that reported by Wang and Wang (2016), Azimpour and Nili Ahmadiabadi (20145), Hosseini et al. (2015), Rezaee et al. (2014), Shafahi (2014), Hoshidar et al. (2014), Najaf Beigi et al. (2011), Val Mohammadi (2010) and Wong and Aspinwall (2005).

It has been discussed that employee motivation is of positive impact on knowledge management establishment and implementation and according to the results, it was confirmed. Its increase or decrease will enhance or reduce knowledge management establishment and implementation in the mentioned corporates.

The result is in accordance with that reported by Romiani (2016), Asish (2015), Rezaee et al. (2014), Hoshidar et al. (2014), Najaf Beigi et al. (2011), Val Mohammadi (2010) and Wong and Aspinwall (2005).

In a model presented by Sepehrband and Falsafi with the aim of investigating the importance and prioritization of necessary prerequisites related to knowledge management establishment and implementation in project-based corporates in the construction industry of Iran using a 220 individual sample, they found that the most and least important factors were organizational culture and assets and knowledge organizing and processes of projects, respectively.

In a model presented by Boromand investigating the success elements in knowledge management establishment and implementation in project-based corporates like Samen Corporate, she perceived the need to knowledge management as a necessary and stable source in order to create the competitive advantage with respect to the knowledge concept in new millennium and temporal jobs as well as unique project environments. Since knowledge management contributes to the increased probability of project success, its usage in the project environments is of considerable importance.

Current research has been conducted with the aim of investigating the effective elements in the success of knowledge management establishment and implementation using Lindner and Wald model as well as Hong and Huang model in Samen corporate. Data collection was done by questionnaires distributed among 111 employees with higher academic degrees using stratified random sampling method.

After considering the questionnaire validity by the content validity method and the reliability by the smoothie method, normality of variables distribution has been addressed by statistical tests.

Given that the distribution was not normal, the results have been shown by nonparametric chi square test. Based upon the research hypotheses, such elements as employee participation, training, organizational culture, ICT process, institutionalization of several projects management and knowledge management, project management methodology and support of projects' knowledge management success were effective.

In a model by Alipour, knowledge and skills were studied in order to establish energy management systems and reduce the energy consumption of air conditioning systems in the buildings because the energy consumption has been increased by three times in Iran in two decades.

Due to relying on traditional ways, lack of renovating old buildings, loss of energy consumption optimization and lack of managers and authorities' awareness in relation to energy consumption optimization, the energy consumption is of 10% growth in Iran. The highest share of energy consumption is attributed to household and business sections with the total 41.9% energy consumption; in other words, energy consumption is 4 or 5 times more than the standards of European countries (Ministry of Energy, 2014). This paper aimed to use knowledge and skills necessary to implement energy management systems in business buildings in order to decrease the energy consumption of air conditioning systems. Considering the expansion of business building construction

in southern cities and the need to energy consumption optimization, applying international energy management standards is essential for achieving continuous optimization by managers and employees because the energy consumption of air conditioning systems is estimated almost 60% in humid and hot regions; it will be decreased by 10 to 40% by implementing energy management systems.

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