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Research Article

IDENTIFYING AND RANKING FACTORS AFFECTING SUCCESSFULLY IMPLEMENTING KNOWLEDGE MANAGEMENT IN KHUZESTAN POWER DISTRIBUTION COMPANY

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ABSTRACT
This research aims to identify and rank factors affecting successfully implementing knowledge management in Khuzestan Power Distribution Company. This is a practical and descriptive survey study with the statistical population including all 180 employees of Khuzestan Power Distribution Company. We used Cochran's theorem to estimate the sample volume. To gather data required for the research hypotheses, we employed questionnaire with its reliability confirmed by Cronbach's alpha. At first, Fuzzy Delphi Method was practiced in order to identify factors. In this stage, all components were classified into three groups of systemic, structural and behavioral. The correlation between the recognized variable was then found by implementing knowledge management through path analysis. Research results showed that there was a significant correlation between systemic, structural and behavioral dimensions.

Keywords: *Knowledge, Knowledge Management and Structural Equation Modeling*

INTRODUCTION
Given the current emphasis on knowledge as a factor of organizational success and competitive advantages, preserving employees is critically important to keep their knowledge in the organization (Salavati and Haghnazar, 2009). Today, employees are the organizations' intellectual capital and the subjects of intellectual capital and knowledge management have turned to an important issue in the area of organizational activities (Hamidizadeh, 2006). Malhutra (2002) defines knowledge management as a process by which organizations can acquire their needed skills in learning, creation, development, and knowledge application.

One challenge organizations in the public sector, especially service providers, are now facing is updating inter-organizational knowledge to confront the progressing social demands, and carefully managing this challenge needs implementation of knowledge management (Darvishi, 2012). It is though believed that most of problems with implementing knowledge management arise from the side of sharing and propagating knowledge inside the organization (Lien *et al.,* 2012). Knowledge management has made radical changes in the management field and seeks for acquiring knowledge, wisdom and experiences with employees' value added and implementing, restoring and maintaining knowledge as organizational assets. Peter Draker calls knowledge management as the secret of organizations' success in the 21th century. Relying on the wisdom, organizational management should make more logical decisions in important subjects to improve knowledge-based performances. Knowledge management is, thus, more important than knowledge on its own, and seeks to explain and elaborate the way of translating individual and organizational information and learning into individual and group knowledge and skills (Glaser, 2003). Although many organizations have invested in various levels in the knowledge development and have been successful, there are also many organizations have failed in this way. Lack of correct mechanisms for appraising and implementing knowledge management has made this form of investment as an additional cost from the perspective of managers. Organizations have to create an environment for sharing, transferring and communicating knowledge among members, direct employees into the direction of giving meaning to their interactions, and provide a good ground for identifying the systemic, structural,

and process factors in order to implement knowledge management (Balugan, 2004). In spite of this, Khuzestan Power Distribution Company with a large number of employees can take advantage of its human asset to act more effectively. An important question is raised here that how can the conditions of the studied company affect implementing knowledge management?

Research Literature

Knowledge

Understanding knowledge as how it is now perceived is based on Michelle Pulani (1996). According to this approach, knowledge can be seen as a justified belief developing the current ability to take an effective step (Huber, 1991). Based on an organizational approach, a Japanese management researcher, Icojiro Nakuna (1994) argues that the organizational knowledge is formed in the interactions of technologies, techniques and people (Yahya and Gool, 2002). Organizational knowledge is classified into two groups of implicit and explicit (Nanuka, 1994). Explicit knowledge can be written, transferred, shared and stored in knowledge references. It is founded on concrete criteria and has the characteristics of general merchandises (Khavuzgil *et al.*, 2003).

Databases and reference books are examples of explicit knowledge. On the other hand, implicit knowledge is difficult to be interpreted and transferred, because it has been placed in people's mind, behavior and perception. Such side of knowledge appears in skillful efforts. Intuition, insight, beliefs, and values are typical examples of implicit knowledge. Knowledge exiting in members' mind is one of the most important resources. Some researchers believe that organizations are the body of knowledge. The worth of knowledge is far beyond material assets including natural and financial. These assets are provided for anyone with similar conditions and can only create temporary competitive advantages.

Knowledge Management

Knowledge management is a system creating procedures for organizational components: identifying knowledge (determining gaps in order to meet objectives), acquiring knowledge (eliminating defects), applying knowledge (implementing and practicing knowledge), sharing knowledge (developing appropriate technologies to share knowledge), developing knowledge (employees' dynamism and building up their capabilities), storing knowledge (maintaining, accessibility and updating knowledge), evaluating knowledge (evaluating the productivity of organizational knowledge) (Salehi *et al.*, 2008).

Knowledge Management Purposes

Davenport enumerates four major purposes for knowledge management systems (Draker, 1997):

1. Creating knowledge storages: developing databases, it is sought to prevent from the dissipation of data and organizational information.
2. Improving knowledge accessibility: one appropriate way to more quickly take advantage of organizational knowledge is to have access to it. In the current world and the world competition stage, information is strategically valuable. Any organization faster obtains information can be the winner of this competition. This can be well observed in the investment companies. If companies are well informed of their portfolios, they can have the best and most optimum investments. This requires having access to knowledge.
3. Developing knowledge environment: like any other system, knowledge has its limits and restrictions. Knowledge borders are extended or limited depending on people's thoughts. Thinking over local markets, organizations concentrate their information domains on the same point. Organizations with international viewpoint extend their environment in world range. This requires correctly managing the organizational knowledge. Undoubtedly, birth, distribution, maintenance and application of knowledge in an organization with local setting are different from the organization internationally working.
4. Managing knowledge as an asset: knowledge can be considered as an organizational asset. Organizational data and information are now sold and has cash value. This shows that knowledge should be considered as a financial source and organizational property.

Information Management Process

Nevis, DyBla, and Gold (1995) categorized knowledge management efforts into three stages: knowledge acquisition, sharing knowledge, and knowledge application. These are the key factors of organizational success (Zhang *et al.,* 2006).

A. Knowledge Accumulation

As Gapta and Gavin (2000) stated, knowledge management consists of creating, acquiring, and maintaining knowledge. Creating knowledge primarily refers more to the interaction between implicit and explicit knowledge than to isolate activities of these two (Hessi, 2004). Such interaction develops innovation and organizational knowledge. By discovering useful and new ideas and solutions, organizations develop new contents and replace the old contents of the explicit and implicit knowledge base. They also achieve their required knowledge by individual learning, exploring the internal and external environments, recruiting new employees, purchasing organizations with the required knowledge from external resources (Hessi, 2004). Maintaining knowledge is the last step of accumulating knowledge and includes all activities relating to knowledge maintenance and allowing organizations to enter them into the system for once and minimize knowledge loss (Gapta and Gavin, 2000).

B. Sharing Knowledge

Sharing knowledge includes communicating information, ideas, suggestions, and judgments relating to the organization among employees. Such exchange can be carried out both informally in places such as corridors and formally in meetings, seminars and presentations. When the acquired knowledge is attended to be a source, it results in competitive advantages. In such cases, management tends to take advantage of employees' knowledge by sharing it. Processes which are shared by this stage determine the organizational success in learning. To apply knowledge capitals, organizations should uniformly flow knowledge into the whole structure (Lein *et al.,* 2003).

C. Knowledge Application

Applying knowledge is effectively using knowledge. Whenever the receiver is well informed of it, he/she recognizes the received knowledge and is free to use it. And the knowledge can be applied. The organizational knowledge communicated between the transmitter and receiver should be integrated with products, processes and services. The receivers' ability to accept knowledge is a determining factor for whether or not the knowledge application has been successful. This does not mean that the knowledge receiver applies the received knowledge. This is just when the receiver takes the ownership of the knowledge. In such cases, the received knowledge is used to develop the new process or product or make a decision. One obstacle in applying knowledge is that others' knowledge is negatively looked (Bircham, 2003).

Factors Affecting Successfully Implementing Knowledge Management

Wong defines the factors of successful knowledge management as activities or practices should be identified for guaranteeing successfully implementing knowledge management (Wong, 2005). He added that these activities or practices had to be nurtured if they existed, and if they did not exist, they had to be development. These factors should be regarded as factors of internal environment which can be controlled and behaved by the company, not as external environmental forces. Accordingly, Davenport and Prosak have identified eight effective factors of successful knowledge management (Davenport and Prosak, 1998). Rayan and Prebatuk (2001) have introduced five factors). Maft *et al.,* (2003) have presented ten factors. And recently, Chang and Chui (2005) have identified eleven factors. Tivana (2000) have presented the following factors as the factors of successful knowledge management: alignment of business guideline and knowledge management, developing the knowledge map, auditing knowledge assets and designing the knowledge management team. Similarly, Nesbiat (2002) presented business goals, knowledge auditing, knowledge map, and creating a flexible organization.

Business Strategy

The strategy announces that in what direction the companyis going to move. Making relation between knowledge management programs and the business strategy is considered as a vital source of competitiveness of all organizations. According to Tivana, knowledge stimulates the strategy and the

strategy stimulates knowledge. Various strategies of knowledge management are more successful when the applied strategy is aligned with the business strategy (Bijres, 1999).

Organizational Structure

Abert and Griffin define the organizational structure as the description of the jobs should be done inside the organization and the way these jobs are correlated. Moreover, the matrix structures and the leadership's emphasis instead of management facilitate sharing knowledge by removing the traditional division restrictions. The control-based organizational structure and the traditional commands have the advantage of reducing the disturbing factors (noises and interruptions). However, this structure is not sufficiently flexible in distributing and sharing knowledge between and inside teams.

Knowledge Team

In knowledge-oriented organizations, teams are units which practically work. Team allows organizations to apply various skills and experiences in processes and problem-solving. Solleiman and Espuner found out teams were not only needed to improve the organizational performance, but to guarantee the effectiveness of knowledge management (Solleiman and Espuner, 2000). The major responsibility of team is to create, implement, concentrate and develop knowledge management. As knowledge management system is built upon specialization, knowledge, perception, skills, and beneficiaries' insights, the quality of relations and collaboration between them determine the final success of the system.

Knowledge Auditing

Knowledge assets are vital for programming for knowledge management and are a rich source of information about the organizational strengths. Any organization should know that the knowledge is placed in what point of the organization. This is important at the time of developing strategies and to be assured of this fact that the knowledge is created, transferred and correctly supported by appropriate ones. Thus, it is necessary for organizations to audit knowledge before implementing knowledge management to see what knowledge assets exist in the organization. If it is not done, time and the effort of organizations for their previous investment and achievementswill be lost (Ibid, 2000).

Knowledge Map

To search for knowledge among multiple performance levels, knowledge-based organizations use maps and routes. Organizations valuing knowledge want to know where and how they can have access to their interested knowledge. According to Tivana, this is the point where the knowledge map presents a momentary display of the situation that an organization has at a certain time relative to competitors.

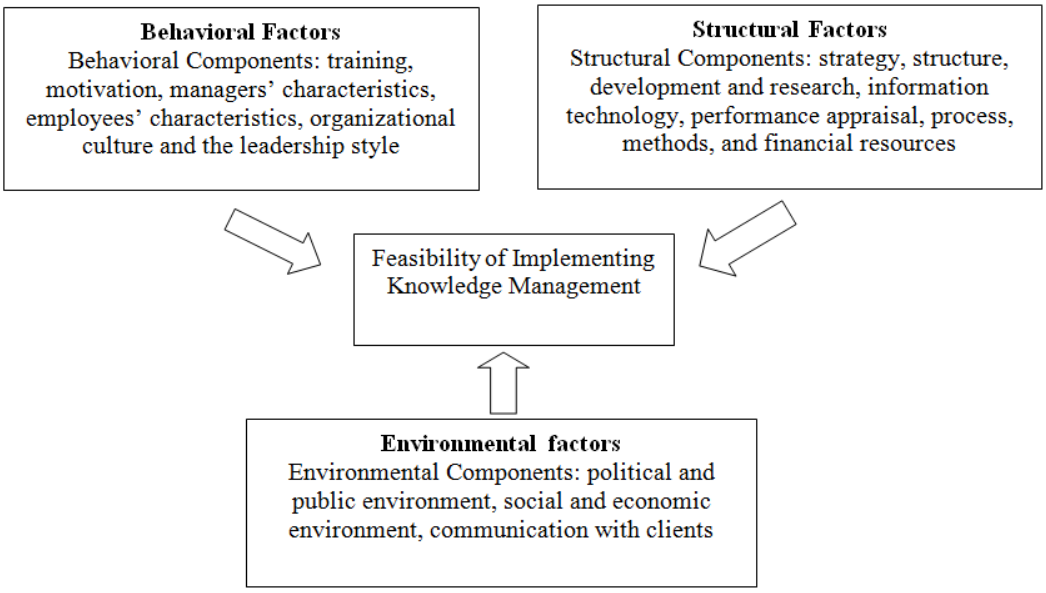

Figure 1: Conceptual model

This helps us in how to find, what to find and where to find useful knowledge inside the organization. The required knowledge should be compared with the current knowledge, and this comparison results in identification of gaps (Ibid, 2000).

In the present research, the primary model is based on the theoretical principles and the triple model in three contexts of systemic, structural and behavioral factors (see figure 1).

Research Hypotheses

1. Systemic dimension affects successfully implementing knowledge management in Khuzestan Power Distribution Company.
2. Behavioral dimension affects successfully implementing knowledge management in Khuzestan Power Distribution Company.
3. Structural dimension affects successfully implementing knowledge management in Khuzestan Power Distribution Company.

MATERIALS AND METHODS

As it is directed toward scientific application of knowledge, this is a practical and descriptive survey study with the statistical population including all 180 employees of Khuzestan Power Distribution Company. We used Cochran's theorem to estimate the sample volume. As the statistical populations include 18, the statistical sample based on Cochran's theorem includes 120.

In addition to library method, we used questionnaire, with its reliability confirmed by Cronbach's alpha, to gather the information required for the research hypotheses. To study the effects of variables on each other, factor analysis and path analysis were exercised. The output of this stage of the structural model expresses the relation between the dependent and independent variables. Therefore, dimensions presented by these stages are as follows:

Table 1: Factors affecting knowledge management

Systemic Factors	Structural Factors	Behavioral Factors
Political environment	Strategy	Training
Social environment	Structure	Motivation
Economic environment	Research and development	Managers' characteristics
Communication with clients	Information technology	Managers' characteristics
	Performance evaluation	Employees' characteristics
	Processes and methods	Organizational culture
	Financial resources	Leadership style

Data Analysis

Confirmatory Factor Analysis of Systemic Factors

This dimension has four questions. The components are presented in the form of four questions. The confirmatory factor analysis of this section is presented in figure 2.

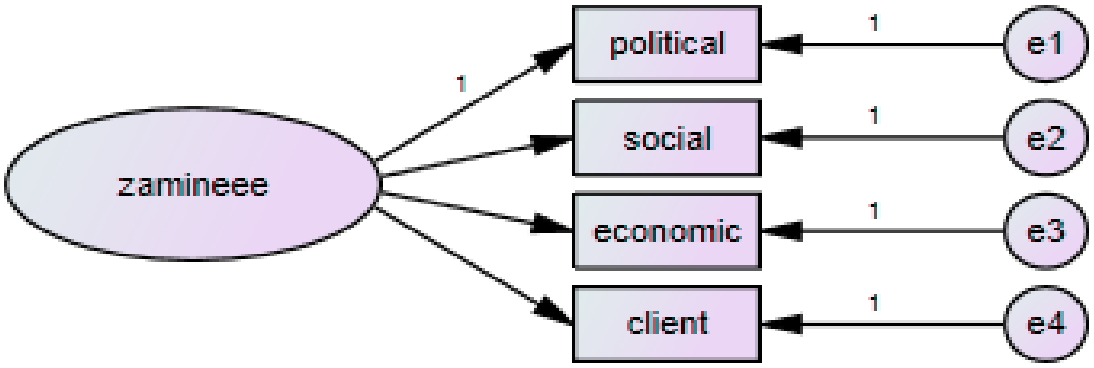

Figure 2: Confirmatory factor analysis model of systemic factors

Following table examines the fit indices of the confirmatory factor analysis of systemic factors.

Table 2: The fit indices of the confirmatory factor analysis of systemic factors

Index	Value	Acceptable Value	Situation
GFI	0.92	GFI>90%	Accepted
AGFI	0.93	AGFI>90%	Accepted
CFI	0.99	0.90<CFI<1	Accepted
CMIN/df	1.02	Less than 3	Accepted
RMSEA	0.017	RMSEA<0.08	Accepted

Regarding the above table, all studied indices are accepted in order to evaluate the fitness of the confirmatory factor analysis. Accordingly, the fitness of this model is confirmed.

Confirmatory Factor Analysis of Structural Factors

This dimension has seven questions. The components are presented in the form of seven questions. The confirmatory factor analysis of this section is presented in figure 3.

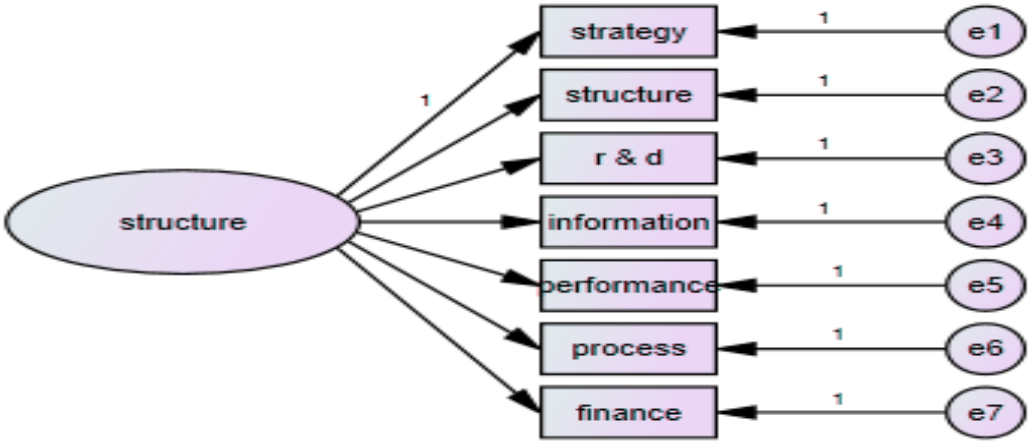

Figure 3: Confirmatory factor analysis model of structural factors

Following table examines the fit indices of the confirmatory factor analysis of structural factors.

Table 3: The fit indices of the confirmatory factor analysis of structural factors

Index	Value	Acceptable Value	Situation
GFI	0.985	GFI>90%	Accepted
AGFI	0.926	AGFI>90%	Accepted
CFI	0.977	0.90<CFI<1	Accepted
CMIN/df	1.848	Less than 3	Accepted
RMSEA	0.085	RMSEA<0.08	Accepted

Regarding the above table, all studied indices are accepted in order to evaluate the fitness of the confirmatory factor analysis. Accordingly, the fitness of this model is confirmed.

Confirmatory Factor Analysis of Behavioral Factors

This dimension has six questions. The components are presented in the form of six questions. The confirmatory factor analysis of this section is presented in figure 4.

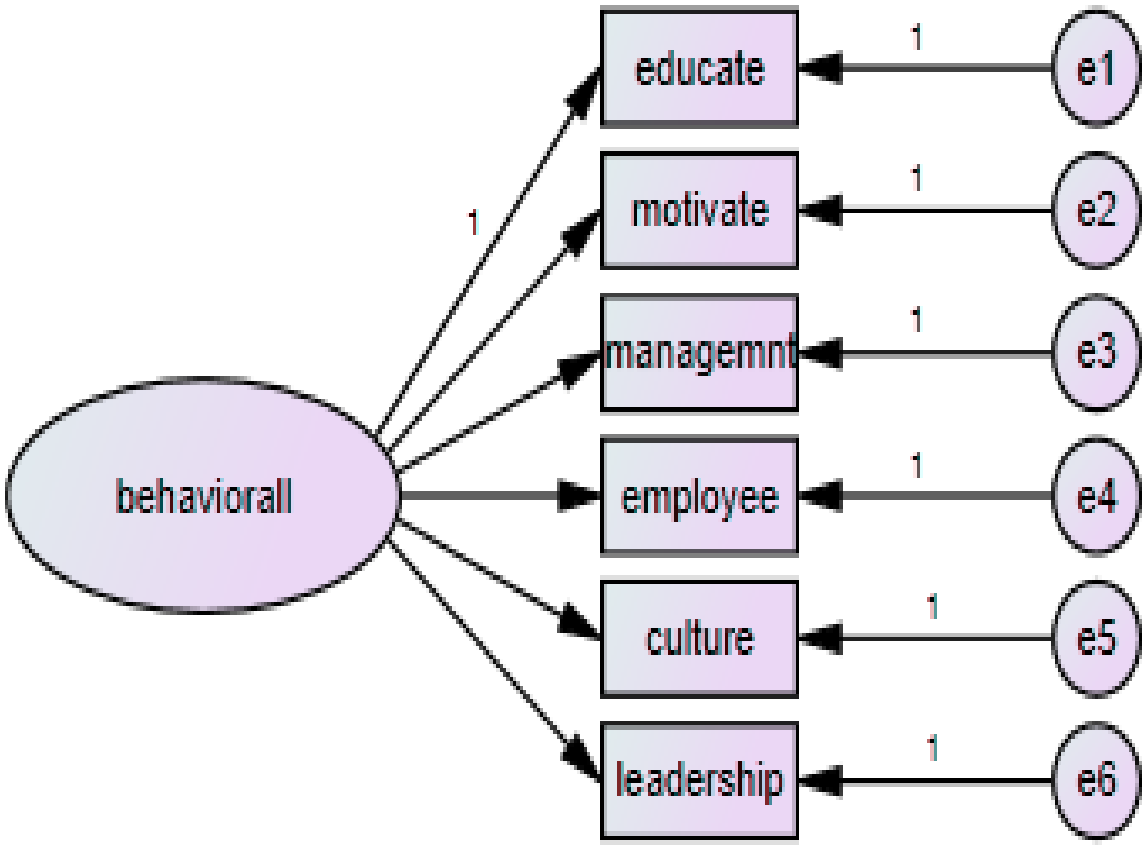

Figure 4: Confirmatory factor analysis model of behavioral factors

Following table examines the fit indices of the confirmatory factor analysis of behavioral factors.

Table 4: The fit indices of the confirmatory factor analysis of behavioral factors

Index	Value	Acceptable Value	Situation
GFI	0.99	GFI>90%	Accepted
AGFI	0.97	AGFI>90%	Accepted
CFI	0.99	0.90<CFI<1	Accepted
CMIN/df	0.628	Less than 3	Accepted
RMSEA	0.075	RMSEA<0.08	Accepted

Regarding the above table, all studied indices are accepted in order to evaluate the fitness of the confirmatory factor analysis. Accordingly, the fitness of this model is confirmed.

Measurement Model

In the measurement model, all research dimensions and the related questions are depicted in a model and correlated to each other two by two. Correlations are examined two by two. If they have the correlation of 0.9 or more, they should be integrated, or the variable with higher variance is kept in the model. Variables with correlation of 0.9 or more mean that they assess two subjects that are closely related to each other.

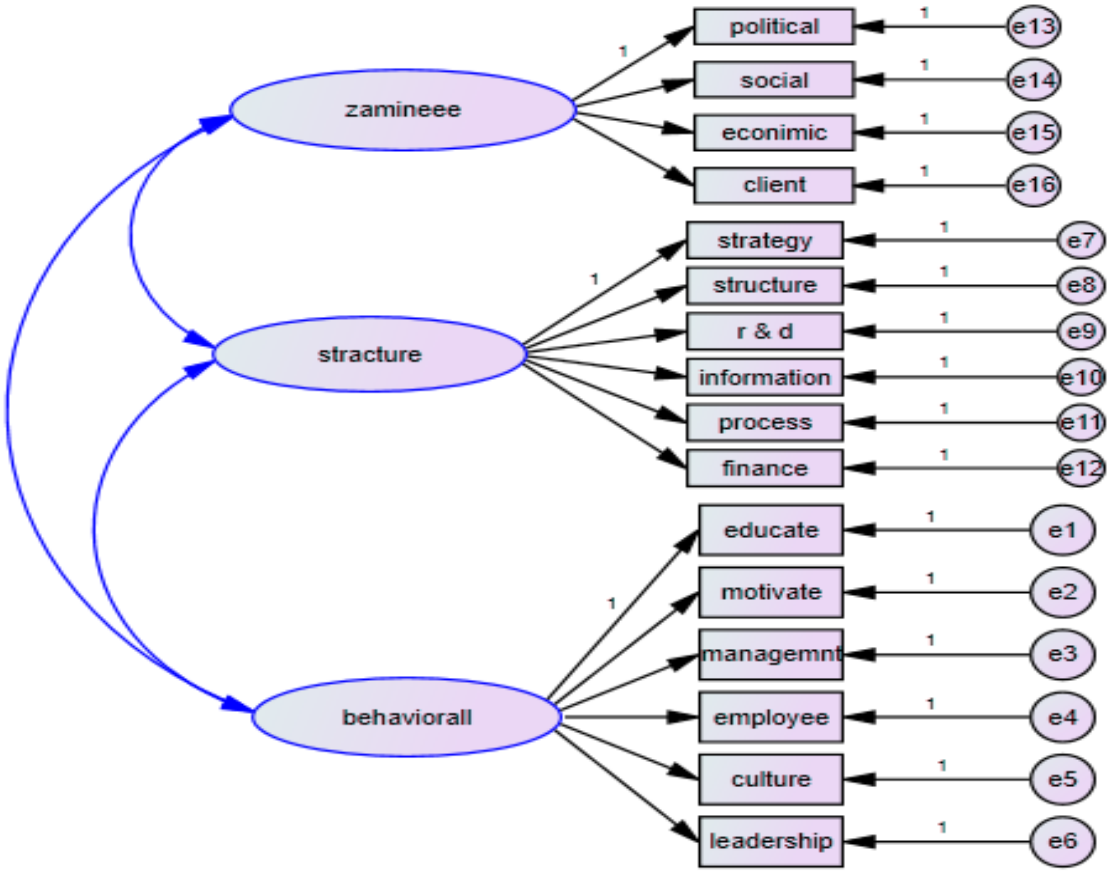

Figure 5: Measurement model for research variables

Table 5: Normality indices of data

Variable	Skewness(by ±3)	Kurtosis (by ±5)
Q17	-1.54	3.38
Q16	-0.85	0.05
Q15	-0.92	2.30
Q14	0.20	3.71
Q13	-0.70	0.87
Q12	-0.76	0.35
Variable	Skewness(by ±3)	Kurtosis (by ±5)
Q11	-0.13	-1.02
Q10	0.92	-0.26
Q9	0.57	-0.66
Q8	0.70	-0.59
Q7	0.52	-0.74
Q6	-0.03	-0.70
Q5	0.09	-1.04
Q4	0.46	-0.59
Q3	0.26	-1.20
Q2	-0.17	-0.91
Q1	-0.25	-0.78

As seen in the above table, all data carry the condition of normality.

Table 6: The fit indices of the confirmatory factor analysis of the research variables

Index	Value	Acceptable Value	Situation
GFI	0.94	GFI>90%	Accepted
AGFI	0.09	AGFI>90%	Accepted
CFI	0.93	0.90<CFI<1	Accepted
CMIN/df	1.38	Less than 3	Accepted
RMSEA	0.061	RMSEA<0.08	Accepted

Regarding the above table, all studied indices are accepted in order to evaluate the fitness of the confirmatory factor analysis. Accordingly, the fitness of this model is confirmed.

Table 7: Factor loading of the questions

Dimensions	Factor Loading	Dimensions	Factor Loading
Q1	0.245	Q11	0.794
Q2	0.794	Q12	0.757
Q3	0.854	Q13	0.801
Q4	0.746	Q14	0.861
Q5	0.021	Q15	0.864
Q6	0.452	Q16	0.587
Q7	0.73	Q17	0.515
Q8	0.84		
Q9	0.75		
Q10	0.245		

In the above table, the factor loading of all questions is acceptable.

Structural Equation Model

After studying and confirming the measurement model, the research model is depicted and the relations between the latent variables (namely research hypotheses) are examined. In this case, we are first assured of fit indices and then consider the given correlation between the latent variables.

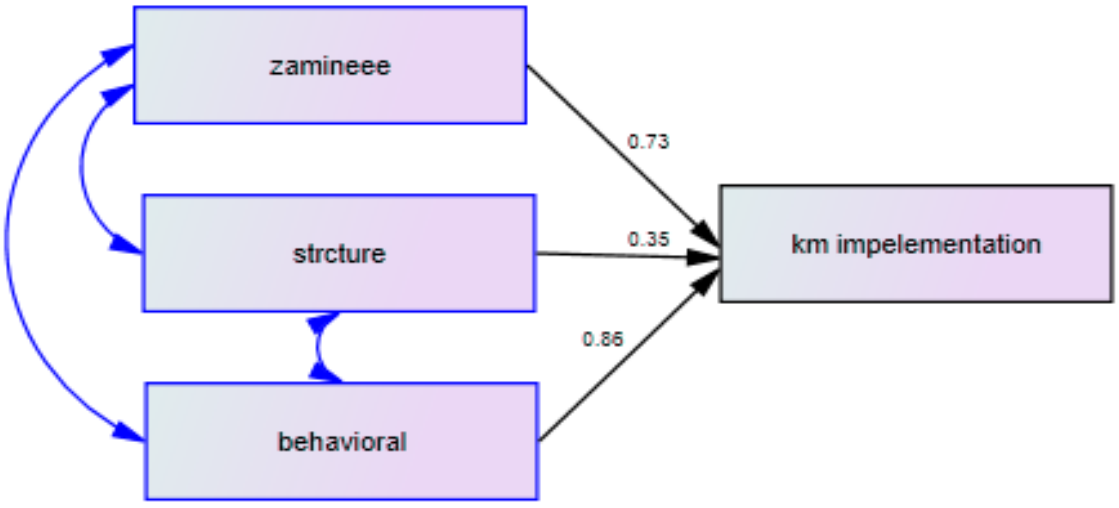

Figure 6: Research structural equations model

In the remaining parts, we discuss over the fit indices of the model.

Table 8: Fit indices of the structural equations model

Index	Value	Acceptable Value	Situation
GFI	0.94	GFI>90%	Accepted
AGFI	0.09	AGFI>90%	Accepted
CFI	0.93	0.90<CFI<1	Accepted
CMIN/df	1.38	Less than 3	Accepted
RMSEA	0.061	RMSEA<0.08	Accepted

Regarding the above table, all studied indices are accepted in order to evaluate the fitness of the confirmatory factor analysis. Accordingly, the fitness of this model is confirmed.
In the following table presents the regression coefficients showing the effectiveness of components on each other and the significance of these coefficients.

Table 9: The regression coefficients of the research components (hypotheses test)

Dependent	Correlation	Independent	Correlation Coefficient	Standard Deviation	Test Statistic	Sig
Implementing knowledge management	--->	Systemic	0.73	0.13	5.88	***
Implementing knowledge management	--->	Structural	0.35	0.23	6.50	***
Implementing knowledge management	--->	behavioral	0.86	0.33	2.59	0.01

Conclusion

First Hypothesis

Studying the relation between implementing knowledge management and systemic factors, a significant correlation was identified between these variables. The test statistic of this correlation was calculated at 5.88, which is greater than 1.96. Given the significance level of 0.00, the correlation between studied indices is confirmed. Finally, the correlation coefficient was estimated at 0.73 showing a high intensity of the correlation.

Second Hypothesis

Studying the relation between implementing knowledge management and structural factors, a significant correlation was identified between these variables. The test statistic of this correlation was calculated at 6.50, which is greater than 1.96. Given the significance level of 0.00, the correlation between studied indices is confirmed. Finally, the correlation coefficient was estimated at 0.35 showing an average intensity of the correlation.

Third Hypothesis

Studying the relation between implementing knowledge management and behavioral factors, a significant correlation was identified between these variables. The test statistic of this correlation was calculated at 2.59, which is greater than 1.96. Given the significance level of 0.01, the correlation between studied indices is confirmed. Finally, the correlation coefficient was estimated at 0.86 showing a high intensity of the correlation.

Suggestions

- Managers' policy-based behaviors should be aligned with successfully implementing knowledge management. The promotion of knowledge within the organization should be also supported.

- Holding training courses, especially for colleagues' family can create an appropriate environment for successfully implementing knowledge management.
- Programs for successfully implementing knowledge management should be based on both the organization's and the country'seconomic condition.
- Managing communication with customer is effective for receiving customers' new insights and ideas.
- The organizational strategies should be aligned with the knowledge management strategies. Thus, in developing organizational strategies, knowledge management should be considered.
- The knowledge management strategies should take the organizational structure into consideration. In successfully implementing knowledge management, a flexible structure should be attempted.
- Building up the research and development department can help meeting knowledge management goals.
- Effectively using information technology for immediately transferring knowledge to members can facilitate communication of knowledge.
- Performance assessment should be based on successfully implementing knowledge management. This system should be consistently assessed.
- Executive process and methods should be based on continually improving knowledge management.
- To successfully implement knowledge management, managers and employees should be trained to acquire the needed skills.
- Motivation through offering reward can encourage employees to use knowledge management.
- For successfully implementing knowledge management, the financial resources should be allocated.
- The organizational culture should be in a way to support knowledge management.

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