

EFFECTS OF APPLYING KNOWLEDGE MANAGEMENT TO INCREASE THE EFFICIENCY OF ALBORZ ELECTRICITY DISTRIBUTION COMPANY

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Abstract. The main purpose of this study is to investigate the effects of using knowledge management (KM) on increasing efficiency of Alborz Electricity Distribution Company. This study is a descriptive-survey research and in terms of purpose, this study is an applied research. Statistical population of this study consists of experts of implementing knowledge management in Alborz Electricity Distribution Company to 142 people. In order to estimate sample size, Morgan formula is used. Main hypothesis is as follows: using KM has significant effect on increasing efficiency of Alborz Electricity Distribution Company. Obtained results showed that the main hypothesis of this study is confirmed. Moreover knowledge socialization in process of KM can have significant effect on increasing efficiency.

Key words: knowledge management, efficiency, knowledge combination, knowledge externalization, knowledge socialization

1 Introduction

The current organizational world is a competitive and challenging world. High speed of changes and on the other hand, instability of the environment has threatened life of the organizations. Hence, those organizations that want to guarantee their sustainability and think about improvement of their position in the market have to use modern management approaches. The environmental turbulence has made organizations selecting perfectionism and continuous improvement as their competitive strategy at the current world and considering improvement of productivity as their pattern (Delavari et al., 2009). On the other hand, knowledge management of the organizations is the fundamental element in achievement and survival of competitive advantage in the organization and its concept presents different types of knowledge to support macro strategy of the organization, evaluation of current status of KM, transfer of current knowledge basis in organization to new and powerful databases and compensation of existing deficits in this field. Americas Productivity of Quality Center (APQC) that is a private educational and research institute has defined knowledge management as follows: strategies and processes to identify and gain power of influencing knowledge to raise competitive power. Lenard Barton (1997) has defined knowledge as a sustainable core including 4 factors including integrated system, managerial system, knowledge and skill of employees and valuation.

The global space of the current markets has different features from past time. Today, the conditions of the market are being changed constantly and the organizations are in relation with types of customers with different tastes. All of these conditions have made the organization be under different situation than before. Hence, to continue their life in such environment, the organizations should be able to achieve features such as meeting customer needs rapidly, innovation, cost reduction, improvement of quality and flexibility. Through investigating all of the said features, it could be found that their common point is knowledge. Knowledge lets the organization predict nature and capability of changes in the environment and also strategic decisions. As efficiency and productivity is a comprehensive concept that its enhancement is considered constantly by the scientists and politicians and economists as a necessity to increase welfare and life level of people (Mayel Afshar et al., 2012) and according to role of knowledge and knowledge management in organization, this study has investigated effects of using KM to increase efficiency of Alborz Province Electricity Distribution Company.

2 literature review

Knowledge is the real asset of the organizations trying to have successful presence in the global competitive domain and integration of systems, values and organizational resources (Ho, 2016). Knowledge management deals with technical tools and multiple human values. Hence, it can show that how intelligent and learning organizations can design their processes using a knowledge-based strategy again (Fat'hian and Ehsani, 2007). Scientific and commercial societies believe that knowledge-based organizations can preserve their long-term preferences in competitive fields. The references of analysis and competitive perspectives of the organizations show that effects of this attitude are in strategic fields of commercial organizations. Scholars and academics have different attitude to KM and consider a range of technological solutions to a series of academic instructions. According to some comments (Hassanzadeh, 2009), knowledge management as a methodology to produce and preserve and use all facilities is a wide collection of knowledge that is used by any organization in daily and routine activities (Yang, 2015). There is another view that considers KM as a set of processes supporting production and distribution and use of knowledge among relevant intelligent factors and technical tools such as information technology and decision support systems (Welbank, 2013).

Many theorists of KM have been responsible for completing discussion of management and distribution and among them; one can refer to brilliant people such as Peter Dracker, Paul Sterlos and Peter Sange from the U.S (King and Marks, 2012). Dracker and Sterlos have emphasized importance of promoting simple information and knowledge as organizational resources and Sange has emphasized learning organizations to create cultural dimensions of knowledge management (Okunoye, 2016).

Everett Rogers from Sanford University has influenced innovation field and Thomas Alen from MIT University have discussed on information and technology transfer (1970), which led to conducting many studies during 1971 that helped understanding this issue that what is Km; how it is produced, how it is used and how it can influence in the organizations (Shadbolt And Burton, 2011).

Majority of books related to field of technology are begun with several definitions; although it is difficult to define knowledge management. Different authors have defined knowledge management from different perspectives and using different approaches and different incentives (Davenport et al, 2002). Majority of them have defined KM generally and have defined it as everything that organization needs to be able to act based on its duties and activities (Ho, 2016). The definition of knowledge management includes Official knowledge, laws, programs and practices and intangible technical knowledge, skills and experiences of individuals. Moreover, the above mentioned definition of KM includes procedure of the organizations, communications, and status analysis, presentation of new solutions for problems and development of novel methods for business. Moreover, the definition encompasses cultural issues and racial discussions and values and relationship with suppliers and customers (Woo et al., 2016).

Knowledge management is a process, through which the organization produces wealth from knowledge or intellectual capital (Nonaka et al., 1995).

3 Knowledge Management

1. Knowledge management refers to achieving to organizational goals through creating incentives in knowledge workers and providing facilities for them according to corporate strategy, so that their ability is increased to interpret data and information (using available results of information, experiences,

skills, culture, individual characteristics, emotions and so on) through making information and data meaningful (Okunoye, 2016).

2. Knowledge management is explicit and systematic management of vital knowledge and processes related to create, organize, distribute and use and explore knowledge (Story and Barent, 2014).

Efficiency refers to the ratio of actual return achieved to the standard return (expected) or ratio of the work is being done to the work expected to be done (Rumesh, 2013).

The main scales to define and evaluate productivity include efficiency scales. Efficiency scales compare inputs or resources of an organization with final products or services. Efficiency refers to ratio of quantity of services and products to financial cost or required labor force. However, this scale and the method of measuring efficiency can't measure amount of customer satisfaction or amount of access to desired goal. For example, efficiency scales show ratio of number of treated people to work hours of doctors; although effectiveness scales are designed in such manner that they show how many patients under treatment have been successful in their treatment (Garcia, 2009). Here, some relevant studies are presented.

Razm Azma et al., (2015) have conducted a study under the title of effect of knowledge management on increasing human resource productivity in Companies of Oil, Gas and Petro chemical Consulting Engineers. Obtained results from Pearson correlation test showed that 5 components of knowledge management model (knowledge creation, knowledge acquisition, knowledge storage, knowledge distribution and knowledge use) are confirmed and efficiency of DMU units are measured and ranked.

Ghazizadeh and Ataei (2013) have conducted a study under the title of knowledge management as effectiveness factor of the

organizations (analysis on role of knowledge acquisition and experience in organizations). In fact, applied strategy in this study is modeling or designing conceptual framework using literature and abstraction (qualitative research method) and visualize the correlation analysis for the relationship between knowledge management and organizational effectiveness (quantitative research methods), which refers to use of mixed method in this study.

Shahbandarzadeh and Ghaemi (2012) have conducted a study to present a model to investigate factors affecting knowledge management deployment. Results of this study showed that the factors "participation of employees" and "organizational factors" have most effect on successful deployment of knowledge management among total scales and subscales of Culture belonged to organizational factors scale (Shahbandarzadeh and Ghaemi, 2012).

Kumaresan and Swarooprani (2015), Nosrati and Mighi (2011), Sherafat et al., (2012), Ghazizadeh Fard and Ataei (2013) have conducted study to investigate knowledge management as predictor of organizational effectiveness and role of demography and employment. Obtained results from the study showed that knowledge management activities are not under effect of demographic factors of individuals. However, this issue is under impact of their employment status, especially in organizational type. The results have been significant and refer to guidelines such as library, especially people from public institutes and they should consider essential instruments to be successful in field of knowledge management and to realize organizational effectiveness (Kumaresan & Swarooprani, 2015).

Fueki and Kawamoto (2009) have also conducted a study under the title of "can IT enhance productivity in Japan?" and have investigated the relationship between IT and increased efficiency during 1975-2005. Results of this study showed that large part of growth in productivity after 2000 is resulted from use of IT (Kumaresan & Swarooprani, 2009).

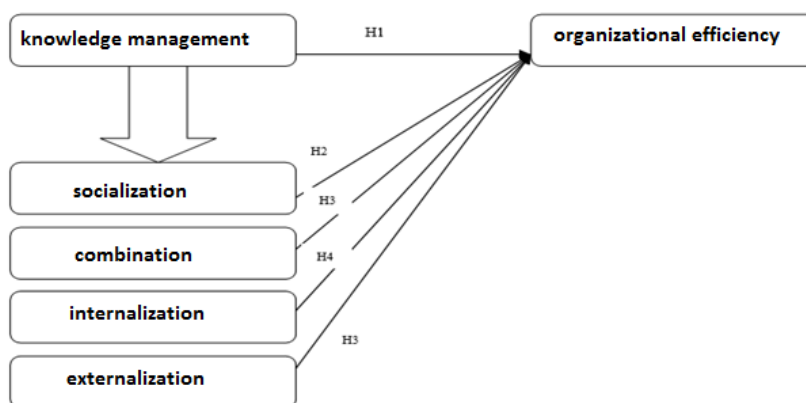


Figure 1: conceptual model of research (source: Ticachi, 1998)

The hypotheses based on conceptual model of research are as follows:

4 Method

The main hypothesis is considered as:

H1: using knowledge management has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

Also, the second hypothesis is considered as:

H2: knowledge socialization in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

H3: knowledge combination in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

H4: knowledge internalization in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

H4: knowledge externalization in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

4.1 Methodology

The main purpose of this study is to investigate the effects of using knowledge management on increasing efficiency of Alborz Electricity Distribution Company. This study is a descriptive-survey research, since the author tends to find nature of effects of using knowledge management to increase efficiency of Alborz Electricity Distribution Company. Type of data in this study is quantitative based on data collection instrument (questionnaire). In terms of purpose, this study is an applied research.

Statistical population in this study consists of executive experts of knowledge management in Electricity distribution Company of Alborz Province to 142 people. To estimate sample size, Morgan formula is used. Number of statistical sample is obtained to 103 people using Morgan formula. Sampling method in this study is available sampling.

In this study, library method is used to collect and codify the literature related to research subject and assessment of the literature.

In this field section, questionnaire is used to collect data and information for purpose of data analysis.

To measure validity of the instrument, content validity is used. The questionnaire is provided based on opinions of 10 senior directors of the Electricity Distribution Company of Alborz and experts of university.

Majority of test makers and scholars fell satisfied when they obtain reliability of 0.90 or higher reliability; although they are dissatisfied by the coefficient below 0.70. In this study, Cronbach alpha is used to measure reliability.

In this study, descriptive statistics are used to show demographic information and to test validity of the questionnaire, confirmatory factor analysis (CFA) is used and to test research hypotheses, structural equation modeling (SEM) is applied using SmartPLS-3 software.

Value of KMO index is obtained to 0.871, which is higher than standard value of 0.6. Hence, number of sample individuals (respondents) is enough to perform factor analysis. Moreover, significance level of Bartlett test is below 0.05 and this shows that matrix of data is not an identity matrix. In other words, there is sufficient correlation among data for factor analysis.

As results of KMO and Bartlett tests have shown that obtained data from the questionnaire is enough for factor analysis, exploratory factor analysis (EFA) can be implemented on the items of questionnaire.

For purpose of data analysis, descriptive statistics techniques are used to measure statistical sample in terms of variables such as gender, age, education level and work experience.

In studies group, 66% of the respondents (68 people) are male and 34.0% (35 people) are female; 3.9% of participants are below diploma; 11.7% have diploma degree; 4.9% have post-diploma degree and 2.9% have PhD degree. Moreover, 4.9% of participants are below 25 years old; 27.2% are in age range of 25-30 years old; 37.9% are in age range of 31-40 and 30.1% are over 40 years old. 4.9% of respondents have work experience below 2 years; 27.2% have work experience of 3-5 years; 37.9% to 6-10 years and 30.1% of respondents have work experience over 11 years (Table 1).

Table 1: results of Kolmogorov-Smirnov Test to test normality or abnormality

Variables	Sample size	Test statistics	p-value
Knowledge management	103	0.57	0.021
Socialization	103	0.81	0.010
Combination	103	0.16	0.031
Internalization	103	0.71	0.024
Externalization	103	0.43	0.025
Organizational efficiency	103	0.61	0.042

If p-value is higher than 5%, variable is normal; otherwise, the data distribution is abnormal. Therefore, all variables have normal distribution according to the table 2.

Table 2: results of one-sample t-test to assess existing status of studied variables

Variable	Theoretical mean value=3.0				
	Observed mean value	SD	t-stat	df	P
Knowledge management	3.4757	1.09226	32.295	102	0.000
Socialization	3.8544	0.96414	40.573	102	0.000
Combination	2.3689	1.25237	19.197	102	0.000
Internalization	3.2621	1.24429	26.607	102	0.000
Externalization	2.5534	1.36287	19.014	102	0.000
Organizational efficiency	1.7573	1.07981	25.915	102	0.000

Significant at level of 0.05

Obtained results from one-sample t-test show that:

- Independent variable of knowledge management and its components (socialization, combination, internalization) have mean value higher than 3.000; except variable "externalization"

that is lower than it. P-value is also below 0.05 and hence, mean value is in average level and H₀ is rejected.

- Dependent variable of organizational efficiency has mean value below 3.000 and p-value is below 0.05. Hence, mean value is in average level and H₀ is rejected (table 3).

Table 3: correlation matrix of main variables

Variable	1	2	3	4	5	6
Knowledge management	1.000					
Socialization	0.786	1.000				
Combination	0.544	0.554	1.000			
Internalization	0.686	0.567	0.605	1.000		
Externalization	0.181	0.457	0.526	0.533	1.000	
Organizational efficiency	0.636	0.366	0.514	0.491	0.685	1.000

*all correlations are significant at the level of 0.05

All correlations had values below 0.8 and hence, existence of multiple common linear correlations between variables is rejected (Table 4).

Table 4: intensity of correlation between main studied variables

Variable	1	2	3	4	5	6
Knowledge management	1.000					
Socialization	Strong	1.000				
Combination	Strong	Moderate	1.000			
Internalization	Moderate	Moderate	Moderate	1.000		
Externalization	Weak	Moderate	Moderate	Moderate	1.000	
Organizational efficiency	Moderate	Low	Moderate	Moderate	Moderate	1.000

The highest correlation coefficient is possessed to socialization and knowledge management to 0.744 that is in strong level. Also, lowest correlation coefficient is related to externalization

and knowledge management to 0.181, which is in weak level (Table 5).

Table 5: reliability of research constructs

Knowledge management	0.875
Socialization	0.881
Combination	0.890
Internalization	0.792
Externalization	0.798
Organizational efficiency	0.888
All items	0.799

To test reliability of variables in Partial Least Squares Method, factor load test is used and here, the factor load should be higher than 0.6 (Table 6).

Table 6: coefficients of factor loads of research variables

Variable	Dimensions	Item or construct	Sig	Std. factor loads	Result
Knowledge management	Socialization	1-6	22.074	0.861	Confirmed
	Combination	7-11	21.493	0.813	Confirmed
	Internalization	12-16	11.439	0.767	Confirmed
	Externalization	17-23	8.916	0.501	Confirmed

According to the tables1-6, all variables have factor load higher than minimum level of 0.6 that shows good reliability of the variables. In the Partial Least Squares Method, The average

variance extracted (AVE) is used to estimate convergence of structures. Least value for good convergence validity for each structure is obtained to 0.5.

Table 7: discriminant validity of structures

Variable	AVE
Knowledge management	0.8091
Socialization	0.8179
Combination	0.5509
Internalization	0.8022
Externalization	0.7866
Organizational efficiency	0.8021

According to table 7, it could be observed that average level of variance extracted for the variables of this research is between 0.5509 and 0.8179, which is higher than least value of 0.5 and this shows good convergent validity of the structures.

The level of AVE for all structures is higher than the correlations coefficient with other structures, which shows good discriminant validity of the structures.

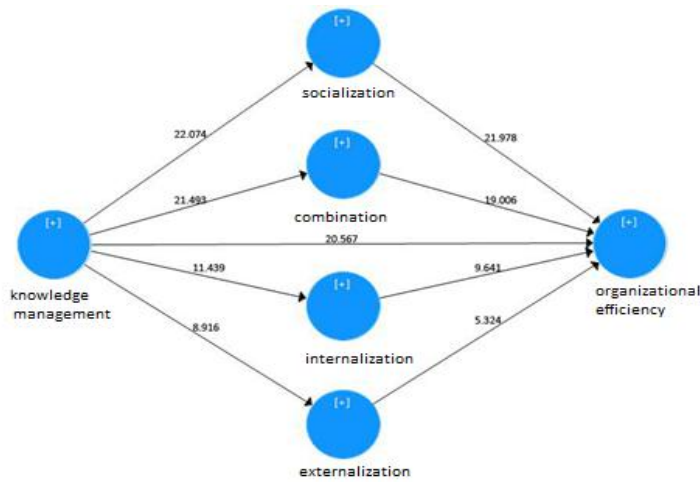


Figure 2: sig levels obtained from structural equation modeling for main hypothesis

According to figure 2, if t-value is between +1.96 and -1.96, the correlations between variables are insignificant at the confidence level of 95% and if the t-value is higher than +1.96 or lower than -1.96, the correlations between variables are significant at the confidence level of 95%. Therefore, is t-value is higher than

1.96, it can show the accuracy of correlation between structures and as a result, confirmation of research hypotheses at the confidence level of 95%. Accordingly, all correlations in model are significant.

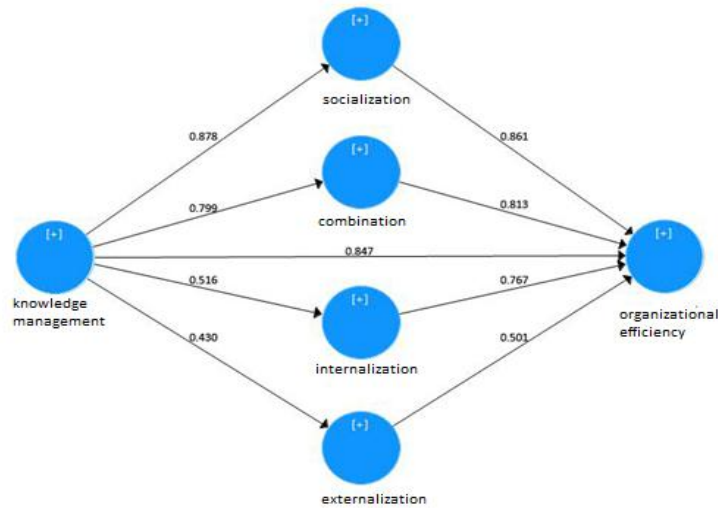


Figure 3: values of standardized coefficients obtained from structural equation modeling for main hypothesis H1

Table 8: results of implementing structural equation modeling for main hypothesis (H1)

Correlations between research variables	t-value	Direct effect ®	Indirect 5grain	Total effect	Result
Using KM→ organizational efficiency	20.567	0.847	-	0.847	Confirmed

According to table 8, structural equation modeling is used to test main hypothesis. Hence, according to path coefficient of variable of using KM to increase efficiency of Alborz Electricity Distribution Company to 0.847 and t-value to 20.567, it could be

mentioned that using knowledge management has significant effect on increasing efficiency of Alborz Electricity Distribution Company and this hypothesis is confirmed.

Table 9: model quality indices and their acceptance in Partial Least Squares Method

Row	Model quality index	Acceptance level	KM	Organizational efficiency
1	Common crossover validity	≥0	0.000	0.000
2	Combined reliability	>0.7	0.916	0.953
3	AVE	>0.5	0.823	0.849

Table 10: results of structural equation modeling for 6 organist hypotheses

Correlations of variables	t-value	Direct effect ®	Indirect effect	Total effect	Result
Socialization – 6organizational efficiency	22.074	0.861	-	0.861	Confirmed
Combination– 6organizational efficiency	21.493	0.813	-	0.813	Confirmed
Internalization– 6organizational efficiency	11.439	0.767	-	0.767	Confirmed
Externalization– 6organizational efficiency	8.916	0.501	-	0.501	Confirmed

Therefore, according to path coefficient of variable of knowledge socialization in KM process to increase efficiency to 0.861 and t-value of 22.074, it could be mentioned that knowledge socialization in KM process has significant effect on increasing efficiency and first secondary hypothesis (H2) is confirmed (Table 9 and 10).

According to path coefficient of variable of knowledge combination in KM process to increase efficiency to 0.813 and t-value of 21.493, it could be mentioned that knowledge combination in KM process has significant effect on increasing efficiency and secondary hypothesis (H3) is confirmed (Table 9 and 10).

According to path coefficient of variable of knowledge internalization in KM process to increase efficiency to 0.767 and t-value of 11.439, it could be mentioned that knowledge internalization in KM process has significant effect on increasing efficiency and secondary hypothesis (H4) is significant and confirmed (Table 9 and 10).

According to path coefficient of variable of knowledge externalization in KM process to increase efficiency to 0.501 and t-value of 8.916, it could be mentioned that knowledge externalization in KM process has significant effect on increasing efficiency and secondary hypothesis (H5) is significant and confirmed (Table 9 and 10).

Table 11: model quality indices and their acceptance level in Partial Least Squares Method

Row	Variable	Common crossover validity	Combined reliability	AVE
		Acceptance level ≥ 0	>0.7	>0.5
1	Socialization	0.233	0.763	0.551
2	Combination	0.007	0.718	0.800
3	Internalization	0.147	0.734	0.783
4	Externalization	0.027	0.778	0.806

According to table 11, research model has good quality, since common crossover validity of research variables is positive and

hence, combined reliability of variables is higher than 0.7 and AVE is higher than 0.5.

Table 12: priority of variables in Freidman test

Degree		
Variables	Mean rank	Significance level
Knowledge management	3.24	2
Socialization	3.85	1
Combination	0.982	4
Internalization	3.21	3
Externalization	2.61	5

According to table 12, it could be found that at the confidence level of 95%, values of research variables in studied population are positive and in high level. In field of answering to research questions based on significance of variables, Friedman test is used to rank the variables. Obtained results showed that variable of knowledge socialization has highest rank and importance among all variables and variable of externalization has lowest importance. All hypotheses of the research have been significant and are confirmed.

7 Conclusion

The results of confirmation of this hypothesis are in consistence with findings of Razm Azma et al (2015), Kumaresan & Swarooprani (2015), Nosrati and Mighi (2011), Sherafat et al (2012) and Ghazizadeh fard and Ataei (2013).

H2: knowledge socialization in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

According to path coefficient of variable of knowledge socialization in KM process to increase efficiency to 0.861 and t-Value of 22.074, it could be mentioned that knowledge socialization in KM process has significant effect on increasing efficiency and first secondary hypothesis (H2) is confirmed.

Main hypothesis (H1): using knowledge management has significant effect on increasing efficiency of Alborz Electricity Distribution Company.

According to obtained results, structural equation modeling is used to test main hypothesis. Hence, according to path coefficient of using knowledge management to increase efficiency of Alborz Electricity Distribution Company to 0.847 and t-value of 20.567, it could be mentioned that using knowledge management has significant effect on increasing efficiency of Alborz Electricity Distribution Company and the hypothesis is confirmed.

The results of confirmation of this hypothesis are in consistence with findings of Razm Azma et al (2015), Kumaresan & Swarooprani (2015), Nosrati and Mighi (2011), Sherafat et al., (2012) and Ghazizadeh fard and Ataei (2013).

H3: knowledge combination in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

According to path coefficient of variable of knowledge combination in KM process to increase efficiency to 0.813 and t-value of 21.493, it could be mentioned that knowledge combination in KM process has significant effect on increasing efficiency and secondary hypothesis (H3) is confirmed.

The results of confirmation of this hypothesis are in consistence with findings of Razm Azma et al., (2015), Kumaresan & Swarooprani, (2015), Nosrati and Mighi, (2011), Sherafat et al., (2012) and Ghazizadeh fard and Ataei, (2013).

H4: knowledge internalization in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

According to path coefficient of variable of knowledge internalization in KM process to increase efficiency to 0.767 and t-value of 11.439, it could be mentioned that knowledge internalization in KM process has significant effect on increasing efficiency and secondary hypothesis (H4) is significant and confirmed.

The results of confirmation of this hypothesis are in consistence with findings of Razm Azma et al., (2015), Kumaresan & Swarooprani, (2015), Nosrati and Mighi, (2011), Sherafat et al., (2012) and Ghazizadeh fard and Ataei, (2013).

H5: knowledge externalization in KM process has significant effect on increasing efficiency of employees of Alborz Electricity Distribution Company.

According to path coefficient of variable of knowledge externalization in KM process to increase efficiency to 0.501 and t-value of 8.916, it could be mentioned that knowledge externalization in KM process has significant effect on increasing efficiency and secondary hypothesis (H5) is significant and confirmed.

The results of confirmation of this hypothesis are in consistence with findings of Razm Azma et al., (2015), Kumaresan & Swarooprani (2015), Nosrati and Mighi (2011), Sherafat et al., (2012) and Ghazizadeh and Ataei (2013).

In order to rank factors affecting increasing organizational efficiency (investigation of using KM and its components to increase efficiency), Friedman test is used. Obtained results showed that variable of knowledge socialization has the highest rank and significance among all variables and variable of externalization has possessed lowest rank. All research hypotheses have been significant and are confirmed.

8 Suggestions

In line with confirmation of main hypothesis (H1), the suggestions are as follows:

- It would better for managers of company to institutionalize organizational culture in such manner, so that they can encourage the employees to share their information and knowledge to achieve organizational goals.
- The managers should hold some meetings to make the employees familiar with each other.
- Managers should consider appropriate rewarding plans to encourage employees to participate in knowledge sharing.
- Managers of companies should consider technological innovations successfully as an essential issue for the organization.
- In line with development and strengthening self-esteem, the managers could provide good environment to appreciate and reward employees and managers in presence of their families and through acknowledgment papers.
- In line with confirmation of H2, following suggestions are presented:
 - Sharing knowledge and experiences of people with in organization should be promoted.
 - Encouraging people to share knowledge
 - Providing required facilities to share knowledge in the organization
 - Promoting team work in organization.
 - Enough trust in the organization to supply knowledge of individuals to entire organization

- Holding regular meetings to exchange information between authorities and employees
- In line with confirmation of H3, following suggestions are presented:
 - Making right decision according to the knowledge within the organization
 - Providing feedback loops between behavior and its results between organization and employees
 - Use of knowledge for organizational purposes by the employees
 - Key employees should be identified to record and maintain knowledge
- In line with confirmation of H4, the suggestions are as follows:
 - Providing adequate environment to implement new theories and ideas in the organization.
 - Idea management systems such as suggestions system, thinking room and consultation council should be existed in the organizations
 - Certain mechanism should be provided to change implicit knowledge to explicit knowledge within the organization
- In line with confirmation of H5, the suggestions are as follows:
 - To record and maintain the information related to knowledge of employees
 - To record and maintain researches and valuable experiences of employees
 - To register and maintain information related to referees
 - To register and maintain the information of projects and documenting them
 - The organization should be equipped to an electronic memory
 - Some mechanisms should be existed to update stored knowledge.

References

1. De Pablos, P.: *Strategies For Management And Organizational Learning: Typologies Of Knowledge Strategies In The Spanish Manufacturing Industry From 1995 To 1999*, Journal Of Knowledge Management, 2002. Vol. 6, p. 12-17.
2. Fathian, M., Ehsani, M.: *A framework for use of KM in the organizations of research and development*, the fourth International Management Conference, 2007.
3. Ghazizadeh Fard, S.Z., Ataei, Syed Sh.: *knowledge management, organizational effectiveness factor (Analysis of the role of knowledge acquisition and experience in organizations)*, Development Quarterly, 2013. Vol. 27, p. 137- 157.
4. Hafeznia, MR.: *The research methodology, book study and compilation publications*, Tehran, Third Edition, 2007. ISBN 1823245654.
5. Hassan Zadeh, M.: *A review of the Resource Knowledge Management and Communication Sciences on "Knowledge Management and Information Science: links and interactions*, Tehran, Ketabdar Press, 2009. ISBN 1345436542.
6. Ho, CT.: *The Relationship Between Knowledge Management Enablers And Performance*. Industrial Management & Data Systems, 2016. Vol. 109, p. 98–117.
7. King, R., Marks, P.: *Motivating Knowledge Sharing Through A Knowledge Management System*. Omega, The International Journal Of Management Service, 2012. Vol. 36, p. 131–146.
8. Kumaresan, C., & Swarooprani B.S.: *Knowledge Management as a Predictor of Organizational Effectiveness: The Role of Demographic and Employment Factors*, The Journal Of Academic Librarianship, 2015. Vol. 5, p. 342-349. Nosrati, S., Mighi, A.: *The role of knowledge management in reducing electrical losses and increasing efficiency (Case Study in Tehran's Electricity Distribution Company)*, Power Distribution Company of Tehran, 2015.
9. Nonaka, I., Takeuchi, H.: *The Knowledge-Creating Company: How Japanese Companies Create The*

- Dynamics Of Innovation*. Oxford University Press, 1995. ISBN 1511383585.
10. Okunoye, A. O.: *Knowledge Management And Global Diversity: A Framework To Support Organizations In Developing Countries*, 2016.
 11. Razm Azma, F., Izadbakhsh HR., Ghanbartehrani, N.: *The effect of knowledge on increasing labor productivity companies Consulting Engineers Oil, Gas and Petrochemical International Conference on Recent Researches in management, economics, accounting*, Istanbul, Institute of Thinker Managers from capital of Ilia, 2015.
 12. Sarmad, Z.: *Research Methods in Behavioral Sciences*, Agah Publications, Tehran, Second Edition, 1999. ISBN 1506341500.
 13. Shadbolt, N., Burton, M.: *Knowledge Elicitation*, In J. R. Wilson & E. N. Corlett, Eds. *Evaluation Of Human Work: A Practical Ergonomics Methodology*. London: Taylor & Francis, 2011. vol. 2, 321-345.
 14. Shahbandar zadeh, H., Ghaemi, A.: *provide a model to study the factors affecting knowledge management, the first National Conference Strategies to improve issues management, accounting and Engineering Industry in organizations, traditional, Islamic Azad University of Gachsaran*, 2012.
 15. Welbank, M.: *An Overview of Knowledge Acquisition Methods, Interacting With Computers*, 2013. P. 83-91, ISBN 978-1-4244-9108-7.
 16. Woo, J., Clayton, J., Johnson, E., Flores, E., Ellis C.: *Knowledge Map: Reusing Experts' Tacit Knowledge In The Aec Industry.*, *Automation In Construction*, 2016. Vol. 13, p. 203-207.

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