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Research Article

The impact of knowledge sharing capability on the ability of innovation among employees of Guilan Electricity Distribution Company

Seyavash Ghasemalipour Selakjani and Hamidreza Rezaei Kelidbari*

Department of Public Administration,
Rasht Branch, Islamic Azad University, Rasht, Iran
*Corresponding Author: Hrezaee41@yahoo.com

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ABSTRACT

The ability to share knowledge is an important strategy which organization employs to create value and increase survival in today's complex and changing environment. The ability to innovate is the most important feature determining the performance. The promotion of innovation can be provided through focusing on innovation capability. On one hand, innovations and innovative activities depend to a large extent on the knowledge, expertise and engagement of employees. So knowledge is a critical resource for organizations and activities of sharing knowledge are important too. Therefore, organizations should rely on their staff as the most important organizational capital and encourage them to understand and provide these new knowledge and ideas and use them practically to advance the purposes of the organization. So employees are the heart of knowledge creating process and are able to create knowledge and share it. In this research, quantitative relationships between the ability of knowledge sharing and innovation capability have been tested. Current research is applied in terms of purpose, descriptive-correlational in terms of methodology and is based on structural equation modeling (SEM). Statistical population of this research includes staff of Guilan Province's Electricity Distribution Company and sampling method was conducted on the basis of non-probability sampling. Validity of the questionnaire was determined by content validity and confirmatory factor analysis and also its reliability was approved through Cronbach's alpha coefficient. Results show that the model employed is a suitable theoretical model for measuring the variables. They also show that knowledge sharing capability affects innovation capability.

Keywords: knowledge sharing capability, innovation capability

1. INTRODUCTION

Innovation capability is an important strategy that organizations use as a means to achieve competitive advantage and increased survival in the global market [33]. This capability involves the organization's ability to attract and use foreign information for transferring new knowledge [14]. Many organizations are faced with many competitive problems in their environment and these problems are due to rapid changes in the environment, especially technological changes. In this regard, managers and staff should use the power of creativity and innovation in order to adapt and keep pace with the rapidly changes, management practices and so on [8]. However, the innovation theory facilitates the integration of development and application of knowledge [23]. But the innovation process is quite complex and requires effective and efficient management in many different activities [24]. On one hand, innovations have a great tendency towards knowledge, expertise and engagement

employees as a key input in the process of value creation [31]. In the literature related to innovation, knowledge is considered as one of the most important components of the innovation process and the importance of knowledge management and its relationship with innovation is widely a knowledge [13]. The main goal of knowledge management is to facilitate the creation, sharing and using of high quality knowledge in order to create a organization that acts intelligently. In an organization that applies the best available knowledge, knowledge management facilitates the exchange of knowledge and needed innovation in the process. So the knowledge management capacity has a key role in supporting and feeding innovation and managing organizational knowledge effectively cannot be done without knowledge sharing and organization will gradually lose their competitive advantage [35]. Therefore, knowledge management at leading organizations helps to create a culture of knowledge sharing among employees and by transforming human capital into organized intellectual properties creates value for the organization [9].So knowledge management is one of the tools that can help organizations to meet their goals [3].On the other hand, nowadays the world's most important feature is changing and organizations are forced to rely on people as the most important asset of the organization and encourage them to understand, comprehend and offer new knowledge and ideas and practical application of these ideas in order to promote organization's goals and objectives [22]. However, the staffs are in the heart of the knowledge creating process in the organization and employees are who create and share the knowledge [19]. But since most government systems are hierarchical, mechanized and less innovative organizations, makes it difficult to share the knowledge and employees in such systems often do not want to share their knowledge with others. [5]. So it seems that government agencies due to structural problems, inadequate regulation and a lack of accountability won't be good grounds for the emergence of innovation and creativity [18].

Therefore, government institutions and systems such as the Electricity Distribution Company of Guilan province are often faced with issues such as inconsistencies and problems in HR department in order to create constructive ideas for enhancement and improvement of knowledge sharing. This can have a great effect on employees' ability to innovate. Therefore, because of the low ability to innovate, researchers have to root it out and examine how employees can assist in solving this problem by improving and strengthening the capabilities of knowledge sharing. The main issue in this research is that what is the place of knowledge sharing between employees of Guilan Electricity Distribution Company and how is its relationship with employees' ability to innovate? So in general, according to the above, the basic research question in this case is whether there is a significant relationship between the ability to share knowledge and ability to innovate?

2. LITERATURE REVIEW

The concept of innovation and innovation capability - Innovation is very important for organizations that want to continue to exist and continue their life and organizations lacking the creativity and innovation of today's advanced world have nothing to say. Thus, in the present era, in order to manage organizations innovation and benefiting from practical and technical achievements should be initiated and pave the way for innovation and appropriate plans in these organizations [8]. So today, many organizations have quickly recognized innovation as an integral aspect for providing good services and knowledge is considered as an incentive to achieve continuous innovation.Despite the long history of innovation in human life, organizations recently have discovered by the dramatic pace of technological change, global competition and environmental uncertainty that innovation is a key source of competitive advantage and continuous survival. This competitive

advantage appears in the form of ideas, products and new services which comes directly from creative thinking [21].

The word innovation first was introduced by Schumpeter in 1930. The definition of innovation is that it is introduced as an idea, product or process to the organization which is new and refers to the orientation of the development of new elements or new combinations of existing elements of products, technologies, procedures or executive practices [6]. Innovation means the creativity manifested and implemented. In other words, innovation means finding creative ideas, offering new products, processes and services to the market and using mental abilities to create a new thought or concept for market. Usually, researchers believe that they have understood the concept of the innovation process, but truly a lot of researches done in different areas related to innovation have provided different definitions and classification for innovation [1]. Rhee et al [27] consider innovation as a major factor for successful competitive advantage of organizations. Innovation in a organizational perspective is defined as a successful application of creative facts in an organization. In this theory, creativity by individuals and teams is a starting point for innovation. Innovation like a public perception is the introduction of a new thing or method. Innovation is a result of knowledge about products, processes and services. Innovation is the introduction and application of new ideas and knowledge. Innovation involves the combination or the conclusion of basic knowledge related to new products, processes or services [27]. Innovation capability is the potential ability of organizations to acquire new products and services, processes and ideas and increase effective economic process. In other words, the ability to innovate potentially is effectiveto provide and create innovation [32]. In other words, the ability to innovate is the organization's ability to attract and use foreign intelligence for the transferring new knowledge [7].

The importance and need for innovation - Today, innovation is increasingly considered as one of the main factors in the long-term success of the organizations in competitive environment. The reason for this is that organizations with innovation capacity will be able to respond to environmental challenges faster and better than non innovative organizations (Jimenez- Jimenez et al, 2008).So innovation is very important for organizations, because it can provide a sustainable competitive advantage for them [34]. Today in the same way, innovation is very important for organizations that want to continue to exist and continue their life. Organizations lacking the creativity and innovation of today's world practically have nothing to say. Thus, in the present era, in order to manage organizations innovation and benefiting from practical and technical achievements should be initiated and pave the way for innovation and appropriate plans in these organizations [8].

The concept of knowledge sharing - Knowledge is the concept and meaning emerged from the thought and it isconsidered as data without it. Only through this concept information revives and becomes knowledge [28]. Knowledge as a valuable resource for the organization hasa great place. The manager must be able to flourish the knowledge lying in its human resources by applying effective management, because only in this way he can deal with the uncertain environment of organization and on the other hand reaches the organization's goals.. Knowledge is a fluid mix of experiences, values, contextual information, and expert knowledge that in a coherent and integrated way provides the framework for assessment and acquisition of new business and information. This knowledge comes from the minds of people and they implement it [2]. On one hand, knowledge management is the study of strategy, process and technology to learn, select, organize, decide and apply expertise and critical information for business decisions in order to improve the quality and efficiency of the organization. On a general level, the knowledge management can be defined as a set

of processes that govern the creation, dissemination and utilization of knowledge. This definition requires the creation of organizational structures, support structures, facilitating the relationships between members, using information technology tools and distributing knowledge [12]

Wiig [35] also believes that knowledge management is the creation of processes necessary to identify and capture data, information and knowledge needed by the organization in internal and external environments and transfer them to the decisions and actions of organizations and individuals [35.Gupta and Macdaniel [11] argue that knowledge management is a process by which organizations become skillful in the field of learning, encoding knowledge, distribution and transmission of knowledge. Knowledge management has two aspects including knowledge administration and the ability to create new knowledge. The purpose of first aspect is the provision of information needed by the applicant at the right time. The second aspect includes the activities of acquisition, integration, distribution, application and creation of knowledge to improve the organization's operations [11]. On one hand, the sharing of knowledge is one of the key areas in the process of knowledge management. Among the issues in the implementation of knowledge management in organizations, one of them is the issue of knowledge sharing within an organization and between different organizations. Knowledge sharing can be defined as a systematic activity to transfer and exchange knowledge and experience between members of a group or organization. Effective sharing of knowledge between members of the organization leads to reducing costs, improving service quality, improving organizational communication, shortening the work processes, disseminating best working methods and thus it will enhance organizational performance. Knowledge sharing by employees occurs when people voluntarily give their knowledge to others and willingly gather their required knowledge from others and thus create a cycle of knowledge sharing within the organization [36]. So the sharing of knowledge is a process through which employees can exchange and create new knowledge. Therefore the importance of knowledge sharing is because of improving innovation capability [29].

The importance of knowledge sharing - One of the priorities stated by the researchers of knowledge management is to motivate people to share their knowledge [16]. Knowledge sharing as a critical element for organizations to develop integrated services, sharing of resources and promoting organizational learning and innovation has been proposed [17].The role of knowledge sharing in knowledge management is so important that some authors argue that knowledge management exists to support knowledge sharing. Although some believe that knowledge is power, but it seems that knowledge has not power in itself but something that gives power to the people is a part of their knowledge that they share with others [20].

Conceptual model of the research - The conceptual model is an analytical tool by which variables in the research and the relationship between them will be specified. Conceptual model of this research is based on the relationship between knowledge sharing and innovation capability and it is shown in Figure 1. The research model of Nareshkumar and RaduanCheRose (2010) is used as the conceptual model of this research. In this model the ability to share knowledge is measured as independent variables and the ability to innovate is measured as a dependent variable.

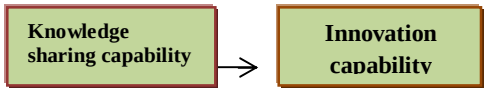

Figure 1. Conceptual model of the research

Knowledge is considered as the fundamental and most important factor of competitiveness and beside that, innovation is known as the most important factor for the survival of the organization. Therefore, knowledge creation, knowledge transfer and application of knowledge that are the main activities of

knowledge management can improve the intellectual capital in organization and the final output of intellectual is innovation [26]. Knowledge sharing in knowledge management is so important that some authors argue that knowledge management exists to support knowledge sharing [20]. Sharing the knowledge is the most important and most fundamental part of the knowledge management process in the organization [4].knowledge is proposed as a part of the process of creating innovation and the importance of knowledge management and its relationship to innovation is widely confirmed [13].

In a study by Hadizade Moghaddam et al. (2011) titled "surveying the relationship between knowledge sharing and innovation in financial services organizations" (staff of RefahKargaran bank), results of statistical analysis showed that the sharing of knowledge (sequential, obvious, hidden, and strategic and expertise) has a positive and meaningful relationship with innovation of Refah Kargaran Bank staff and more the sharing of knowledge among staff, the innovation level will be more. In another study by Shayemi et al (2012) titled "the impact of knowledge sharing on innovation and performance of small and medium-sized companies in Mazandaran province with balanced scorecard approach", results of statistical analysis showed that sharing implicit and explicit knowledge influences the speed and quality of innovation,, and innovation in turn has an positive and meaningful effect on company's performance (financial, customer and internal processes).In a study by Wang and Wang (2012) titled "the relationship between knowledge, innovation and performance in 89 companies with high technology in China", results show that knowledge sharing (implicit and explicit) impacts on innovation and performance. Sharing explicit knowledge has a more meaningful impact on the pace of innovation and financial performance, while sharing implicit knowledge has more meaningful impact on the quality of innovation and operational performance. According to the conceptual model and material research, the hypothesis is as follows:

Knowledge sharing capability has effects of on innovation capability.

And purposes of this research in terms of use are as follows:

1. Measurement of knowledge sharing capability among the staff of Electricity Distribution Company in Guilan province
2. Measurement of innovation capability among the staff of Electricity Distribution Company in Guilan province
3. Measurement of the effect of knowledge sharing capability on innovation capability among the staff of Electricity Distribution Company in Guilan province

3. THE METHOD OF CONDUCTING RESEARCH

In terms of categorizing research based on purpose, this study can be considered as an applied research and in term of the method, it is descriptive-survey and correlational. Because description and characterization of the variables of a given situation is provided and also collecting data and factual information, identifying issues, comparison and valuation and assessing the change of variables in study is done. Statistical population in this study includes employees of Guilan Electricity Distribution Company, which has 600 staff, and due to the limited size of statistical population in this study, Cochran formula was used to determine the sample size and there were 235 members. In order to enhance the credibility of the study, 250 questionnaires were distributed among employees. The sampling method used in this study was available non-probability sampling. For Gathering data and information field method and questionnaire is used. The research assessment tool was based on a standard questionnaire and Kim and Lee standard questionnaire (2006) was used for knowledge sharing capabilities and Lee and Choi standard questionnaire (2003) was used for innovation capability. In this study, the validity (credit) of questionnaire has been approved through face and content validity of

the research tool according to the experts in the field of management science. For determining the reliability of questionnaire with an emphasis on consistency and internal harmony of measuring tool that measures different features, Cronbach's alpha coefficient was performed and by using the statistical software SPSS, Cronbach's alpha for the variables of knowledge sharing capability, innovation capability and all of the questionnaire (respectively 0.62, 0.75 and 0.92) was determined and approved. Also in order to analyze the data, statistical software SPSS and LISREL were used and for testing the research hypothesis, descriptive statistics and structural equation modeling (SEM) was used.

4. ANALYZING DATA

Descriptive statistics of variables in this study - Descriptive statistics of variables in this study for respondents indicated that average obtained variable of knowledge sharing capability is 3.93 and standard deviation is 0.81, and average obtained variable of innovation capability is 4.02 and standard deviation is 0.76 ability, which according to the average total (3.50) indicates that the variables of knowledge sharing and innovation capabilities of the respondents are in a favorable level.

Estimation and testing the measurement models - Structural equation models have been developed to investigate and test theory that helps to establish a relationship between latent variables or constructs. Structural equation modeling approach includes designing measurement models for latent variables to define latent variables and then establish relationships with structural equations among latent variables [30].

Measurement of knowledge sharing capability - Within the framework of this research, knowledge sharing capability is an independent variable and for measuring the amount of knowledge sharing capability among the employees of Electricity Distribution Company in Guilan province, 3-pointLikert scale with the option of “Totally agree and totally disagree” from Kim and Lee questionnaire (2006) was used. Results of factor analysis (index used) in this study to table 1 indicate that measuring model of knowledge sharing capability is a good model, because the ratio of chi-square and degree of freedom (1.93) is in the range of 1 and 3 which is desirable and is one of the public indexes in calculating fitting indexes [30]. The value of PMR is 0.011 and the value of RMSEA is 0.060 and the values of other indicators such as GFI, AGFI, NFI, TLI and CFI are all above the %90 so they are good values. Therefore, the measuring model for the variable of knowledge sharing capability with regard to the acceptable measures of overall fit is adequate and is the right model to enter into structural equation modeling to analyze structural relationships.

Table 1 –Fitness indicator knowledge sharing capability

Criterion	Chi-Square	Chi-Square/DF	GFI	AGFI	NFI	TLI	CFI	RMSEA	RMR
Result	366.42	1.93	0.98	0.96	0.98	0.99	0.99	0.060	0.011
Optimum state		Between 1 and 3	Between 0.8 and 1.0	between 0.8 and 1.0	between 0.8 and 1.0	between 0.8 and 1.0	Between 0.8 and 1.0	Less than 0.05	Near to 0.0

Measuring innovation capability - Within the framework of this research, innovation capability is an dependent variable and for measuring the amount of innovation capability among the employees of Electricity Distribution Company in Guilan province, 5-point Likert scale with the option of “Totally agree and totally disagree” from Kim and choi questionnaire (2003) was used. Results of factor analysis (index used) in this studyto table 2 indicate that measuring model of innovation capabilityis a good model, because the ratio of

chi-square and degree of freedom (2.95) is in the range of 1 and 3 which is desirable and is one of the public indexes in calculating fitting indexes [30]. The value of PMR is 0.019 and the value of RMSEA is 0.051 and the values of other indicators such as GFI, AGFI, NFI, TLI and CFI are all above the %90 so they are good values. Therefore, the measuring model for the variable of knowledge sharing capability with regard to the acceptable measures of overall fit is adequate and is the right model to enter into structural equation modeling to analyze structural relationships.

Table 2 - Fitness indicator innovation capability

Criterion	Chi-Square	Chi-Square/DF	GFI	AGFI	NFI	TLI	CFI	RMSEA	RMR
Result	14.75	2.95	0.92	0.92	0.91	0.97	0.97	0.051	0.019
Optimum state		Between 1 and 3	Between 0.8 and 1.0	between 0.8 and 1.0	between 0.8 and 1.0	between 0.8 and 1.0	Between 0.8 and 1.0	Less than 0.05	Near to 0.0

Estimation and testing the structural model in the study (complete model) - Minor structural model is from structural equation modeling that shows how implicit variables (and sometimes explicit) affect each other [10]. The reason for using this approach is that this model can instead of analyzing the variables two by two and separated, analyzes the relationships between all the variables simultaneously. Structural equation modeling approach is a holistic approach to test hypotheses about the relationship between observed and latent variables (Schumacher and Lomax, 2009).The results of analyzing the path and the causal relationship between the variables in the study are shown in Table 3.

Table 3 - Analysis of fit indices in the complete model

Criterion	Chi-Square	Chi-Square/DF	GFI	AGFI	NFI	TLI	CFI	RMSEA	RMR
Result	17.82	2.54	0.92	0.94	0.89	0.93	0.91	0.057	0.029
Optimum state		Between 1 and 3	Between 0.8 and 1.0	between 0.8 and 1.0	between 0.8 and 1.0	between 0.8 and 1.0	Between 0.8 and 1.0	Less than 0.05	Near to 0.0

Path analysis model is a good model, because the variable of normalized chi-square or chi-square in degree of freedom with the amount of 2.54 is in the range of 1 and 3 which is desirable. The value of RMSEA is 0.057 and is located in an acceptable range (smaller quantities of 0.05). Other indices include: GFI with 0.92, AGFI with 0.94, NFI with 0.89 and TLI. Also the CFI indexes are 0.91 which is close to one and all of them indicate acceptable values. RMR is 0.029 which is under 0.05 and close to the zero value. These all indicate that the overall fitting indexes in the model show good conditions.

The results of analyzing the path and the causal relationship between the variables in the study are shown in Figure 2.

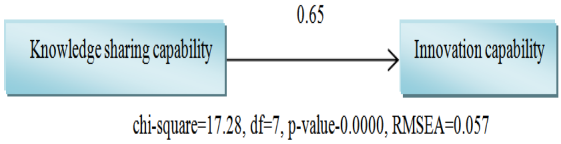

Figure 2. The full path in the case of non-standard analysis estimates

As Figure 2 shows, casual structural relationships are depicted in this model and for casual relationships between variables in this study, a factor is considered. This factor is the regression factor in structural equations.

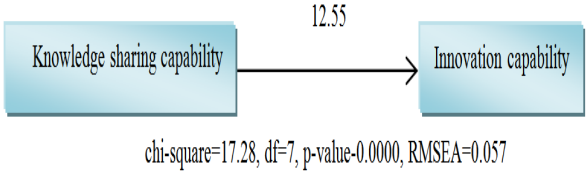

Figure3. The full path analysis in the case of significance of coefficient

As Figure 3 shows, the results of path model are presented in a meaningful way and

comparison between the variables shows that the relationship between knowledge sharing capability and innovation capability is significant. Thus, according to Figures 2 and 3, the regression coefficient between knowledge sharing and innovation capabilities is (β=+0.65) and its critical rate is (t=12.55). Considering the regression coefficient and this fact that critical rate is outside the critical range (-1.96 and +1.96), then the relationship between knowledge sharing and innovation capabilities is significant. Therefore it can be concluded that the knowledge sharing capability has an effect innovation capability. The result of this hypothesis is in line with researches conducted by Wang and Wang's (2012), HadizadeMoghaddam et al.(2011)and Shayemi et al. (2012).

Table 4 – Summary of the results of hypothesis

Hypothesis	Direct effects of knowledge sharing capability on innovation capability	The estimated standard regression coefficient	Critical rate	Result of hypothesis
knowledge sharing capability has effects of on innovation capability	knowledge sharing capability --→ innovation capability	0.65	12.55	Confirm

5. DISCUSSION AND CONCLUSION

Since the variable of knowledge sharing in relation to innovation capability was measured in a high level among employees. It can be stated unequivocally that there is a sense of commitment and responsibility, a sense of belonging, the ability and capability, competence and confidence in knowledge sharing activities of staff that is eligible for knowledge sharing and have a significant impact on the improvement and development of innovation. Since knowledge is essential for innovation, on one hand with respect to the high potential of human resources in Electricity Distribution Company of Guilan province in terms of education and work experience (%90 haveBachelor and Master's degrees and 50 percent have working experience between 10 to 20 years), in order to boost innovation capability among staff, following suggestions are offered:

1) The establishment of knowledge management and preparing the programs required for education and implementation of training knowledge sharing

2) The establishment of strategy based on increasing the perceived knowledge sharing through the following actions:

2-1) Creation the Internet for knowledge sharing among staff

2-2) Creation of Bank's information technology to contribute to the dissemination and sharing of knowledge among employees

3) Creating a Research and Development unit (R & D), Creating innovation teams to keep track of new ideas among employees

The most important limitation of the study which one of the specific characteristics of social science is the impact of the variables that controlling them is beyond the reach of the researcher and its possible influence on the results is not far-fetched. One of is that the data and information of this study are collected in a cross-sectional way, so the results may be limited to a period of time. The other is that the questionnaire used in this study was closed, so the data collection and analysis of data may not be accurate. Also in this study, the Electricity Distribution Company of Guilan province is limited, therefore, generalizing the results to other companies and government systems do not seem appropriate. Therefore it is recommended that to collect detailed information for a full analysis of the data, longitudinal analysis and other tools to collect information such as interview and questionnaire must be used. Also a similar research in other organizations such as water, gas and other government systems should be carried out and the results should be compared with the results obtained from this study.

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