

INVESTIGATING THE EFFECT OF KNOWLEDGE MANAGEMENT ON THE NEW SERVICES DEVELOPMENT IN THE INSURANCE INDUSTRY BY CONSIDERING THE ROLE OF OPEN INNOVATION AND RADICAL INNOVATION VARIABLES

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Received: 10 Oct 2020 Revised and Accepted: 14 Dec 2020

ABSTRACT

This research was conducted to investigate the effect of knowledge management, open innovation and radical innovation on the new services development in the insurance industry. The research ahead is applied and its approach is descriptive-survey. In this research, senior and middle managers of the insurance companies active in Iran were considered as statistical population, the number of whom was 250 people. Based on the Cochran's formula, 148 statistical samples were required for this population. In the present research, the available stratified sampling method has been used to select statistical samples. The research data collection tool was a researcher-made questionnaire consisting of four standard questionnaires containing 51 items in themselves. The validity of this questionnaire was investigated and confirmed through face validity and confirmatory factor analysis methods. The reliability of the questionnaire was also investigated and confirmed by Cronbach's alpha method. The data obtained from the questionnaires were analyzed using descriptive and inferential methods and through SPSS and LISREL software. At the end, the research results showed that in the population under study, knowledge management has a significant impact on open innovation, radical innovation and the new services development.

Keywords: Knowledge Management, Open Innovation, Radical Innovation, New Services Development, Insurance Industry

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DOI: <http://dx.doi.org/10.22159/jcr.07.01.01>

INTRODUCTION

Since customers play an essential role in the process of organizational activities and affect their organization's fate through thoughts and policies, so, not only recognizing their obvious needs, but also predicting, determining and managing the hidden needs of customers, designing and implementing programs, and providing services to address these needs are key and organizational pillars (Hosseini et al., 2017). Nowadays, superior companies have realized that accuracy, speed and continuity in designing and supplying new products and services, bring their superiority in the competitive market (Sabbaghchi et al., 2011). In response to these changes, innovation and new product/service development play an important role in the success of a company (Svendson et al., 2011). The new product development is a vital force for companies and indicates hope for growth in the future (Pitta, 2012). Managing new product and service development plans means coordinating and centralizing the management of several new products and services development plans to achieve strategic goals and revenues. The capabilities of the new products and services development plan include the following eight dimensions: communication management, network management, compiling an appropriate strategy for cooperation and outsourcing, failure, definition and delivery of work, contract and claims management, integration and change management, knowledge and technology management, and finally, budgeting and timely provision of financial resources (Delavari et al., 2015).

One of the advantageous capabilities for organizations is the ability to process new product/service development. New product/service development is a knowledge-based process; to be successful in this process, organizations need sufficient knowledge and information

(Mohammadi Moghadam et al., 2018). The knowledge management process includes the following four phases: acquiring, creating and attracting knowledge, knowledge organizing, maintenance and storage, knowledge transfer, distribution and sharing, and finally, knowledge use, application and exploitation (Shafiee, Nikabadi, 2013). Knowledge management is an organizational capability that allows individuals, technology, processes, and strategy within the company to be integrated to create, use, and share knowledge in order to produce products and services (Chen, 2015).

In addition to knowledge management, another important factor that can play a role in the new products and services development is innovation. In order to describe the trend of recent developments in innovation, Chesbrough (2003) proposed the term Open Innovation. Open innovation is a new approach that states that when organizations seek to promote their technologies, in addition to internal ideas, they must also use and apply external ideas from the external channels of market (Chesbrough et al., 2006).

In fact, the use of open innovation indicates that the performance of new product/service development can no longer be improved only by the company's internal research and development operations, but it also requires the participation of a wide range of external factors (Dehghanipoodeh, Akhavan and Hosseini Sarkhosh, 2013). Open innovation itself includes the main process: internal to external, external to internal, and paired (Wu and Hu, 2018).

Xiaoxiao and Qingpu (2018) believe that open innovation can affect radical innovation. Radical innovation is actually to pursue and achieve products and services that meet the novel and new emerging needs of customers (Moezzi et al., 2012 ; Xiaoxiao and Qingpu, 2018). In other

words, radical innovation includes the use of new knowledge and technology in the development process in order to create significant improvement in the processes of design, production, sales, and delivery of products and services (Slater et al., 2014). Radical innovation structures include the following cases: acquiring market information through suppliers to make prediction, acquiring market information through the suppliers to commercialize products, performance, market share, focus on sales, ease of entering the market, market growth, relative size, and finally the relative cost (Song and Thieme, 2009).

Investigations show that knowledge management can put open and radical innovations under its impact (Wang and Xu, 2018). Moreover, the results of researches have indicated that open innovation can influence radical innovation (Wang and Xu, 2018; Xiaoxiao and Qingpu, 2018). In this regard, researches have shown that innovation can positively affect the ability to design and develop new products (Fouad, Tourabi and Lakhnati, 2018; Delavari et al., 2015; Dehghanipoodeh, Akhavan and Hosseini Sarkhosh, 2013). In addition, the results of previous researches indicate the impact of radical innovation on new product development (Darawong, 2018).

With these explanations, it should be mentioned that conducting preliminary investigations and interviews in the insurance industry of Iran, is an evidence for the point that the activists of this field for reasons such as the intensity of competition in the market, sharp increase in fixed and variable costs, economic problems and so on face numerous problems and risks in the issue of new services development and plan management, that have led to the failure of many services in recent years. Therefore, according to the senior managers of insurance companies in Iran, careful study of the factors affecting the new services development and plan management is very important and can be useful. However, the investigation of reputable scientific databases shows that so far no specific research has been performed in the field of new services development and plan management in the insurance industry of Iran, and a clear study gap is visible. Therefore, the present research intends to answer the following main question by designing a scientific and systematic research: "What effect do knowledge management, open innovation and radical innovation have on the new services development in the insurance industry of Iran?".

RESEARCH HISTORY

Shafizadeh, Abbasnejad and Ghafourian (2019) published a research aiming to investigate the factors affecting the success of new product development using the system dynamics approach. In this research, in order to identify and analyze the dynamicity of the factors affecting the success of new product development, based on the theoretical background and the opinions of industry experts, key variables and the relationships among them were identified. Then, in order to improve performance, policies to increase support and investment in the research and development domain and new product development and planning were proposed and simulated.

Voshkaiejad, Ebrahim Pouraziri and Dostar (2019) published a research entitled "A model for promoting the success of new product development based on customer participation capability, the attraction of customer knowledge and resource gap (case study: Rasht knowledge-based companies)". The aim of this research has been to investigate the effect of customers' participation capability on the success of new product development and considering the attraction of customer knowledge as a mediator variable and the adjusting role of

the company's resource gap to develop past studies. This research has been applied in terms of purpose, and has been descriptive in terms of method. The data collection tool has been questionnaire and 30 knowledge-based companies of Rasht have participated in this research. The research findings show that customer participation capability directly and indirectly affects the success of new product development through the attraction of customer knowledge, but the adjusting role of the resources gap in the relationship between the attraction of customer knowledge and new product development success was not confirmed. Therefore, in order to be successful in the new product development, knowledge-based companies need to pay special attention to create the customers' participation capability and the attraction of their knowledge so that they can have an acceptable position in the competitive and dynamic arena of the market.

Khalilnejad and Daneshvar Deilami (2018) conducted a research to analyze the effect of learning strategies on the new product development in the medicine producer companies in the country. This research has also investigated what role the strategic orientations and cognitive capabilities play in strengthening or weakening this relationship. The research results showed that exploratory and exploitative learning strategies are effective in new product development. In addition, the research results showed that cognitive capabilities can moderate the aforementioned relationship.

Mohammadi Moghaddam et al. (2018) conducted a research to investigate the relationship between knowledge management capability and the new product development process. This research has been conducted in Dadfar Food Industries Company of Shiraz. The results of this research have indicated the relationship between knowledge management capability and new product development.

Moradi et al. (2017) published a research entitled "Identifying and analyzing the dimensions of innovation in the process of new product development using the structural equations method". In this research, by emphasizing innovation as one of the most basic components of the new product development process, various dimensions of this component in a new product development process have been identified. On this basis, at first using library study, studies related to innovation dimensions in the new product development have been reviewed and the general list of innovation dimensions as well as the measurement variables of each of these dimensions have been extracted. Then, by distributing a questionnaire among experts the subject under discussion in nanotechnology companies, and the significance of the relationship between the dimensions extracted and innovation in the new product development was investigated, using factor analysis. After analyzing the collected data, the results indicated the significance of the relationship between the identified dimensions and innovation in the new product development.

Delavari et al. (2015) conducted a research with the aim of identifying the capabilities of new product development plan management in an open innovation atmosphere. This research has been conducted based on the qualitative approaches of the Grounded Theory and Theme Analysis. Finally, this research proposed eight key capabilities as follows: failure, definition, and work delivery, integration and change management, knowledge and technology management, contract and claims management, compiling an appropriate strategy for cooperation and outsourcing, network management, budgeting and on time provision of financial resources and communication management.

Dehghanipoodeh, Akhavan and Hosseini Sarkhosh (2013) conducted a research to investigate the effect of developing an open innovation approach on the success of new product development. The results of

this research showed that the dimensions of open innovation have a positive relationship with the success of new product development.

Sabbaghchi, Ghazi Nouri and Elahi (2011) conducted a research with the aim of prioritizing knowledge management tools in the development of new software product. Based on the obtained results, the knowledge transfer and dissemination process were determined as the first priority among the processes and cooperation tools group, as well as the first priority among the knowledge management tools.

Wu and Hu (2018) published a research entitled "Implementing knowledge management based on open innovation: the mediating role of knowledge management design". This research was conducted with the aim of investigating the effect of open innovation processes (internal to external, external to internal, and paired) on the design and implementation of knowledge management. In this research, the data were collected through a closed questionnaire, and analyzed by structural equation modeling method. Finally, the results confirmed the significant effect of three open innovation processes on internal and external processes of knowledge management design, and implementation of knowledge management.

Ritala et al. (2018) published a research entitled "External sharing of radical knowledge and innovation". This research was conducted to investigate the effect of external and uncontrolled sharing of knowledge on random leakage of knowledge and the implementation of radical innovation. In this research, the data were collected through a closed questionnaire, and analyzed by structural equation modeling method. The research results showed that external and uncontrolled sharing of knowledge had a positive effect on random knowledge leakage, but had a negative effect on the implementation of radical innovation. In addition, the results showed that the random leakage of knowledge has a negative effect on the implementation of radical innovation.

Wang and Xu (2018) published a research entitled "Investigating the relationship between open innovation, customer knowledge management and radical innovation: considering the mediating effects of organizational learning capabilities". This research was conducted to investigate the impact of open innovation processes (from inside to outside and from outside to inside) and customer knowledge management on radical innovation, and in this respect the variables of exploratory learning ability and exploitative learning ability were also considered as mediating variables. In this research, the data were collected through a closed questionnaire, and analyzed by structural equation modeling method. The results of this research showed that open innovation from outside to inside has a positive and significant effect on radical innovation. Also, open innovation from inside to outside and customer knowledge management through mediating variables of exploratory learning ability and exploitative learning ability can have positive and significant effects on radical innovation.

Xi and Zhang (2018) published a research entitled "Open innovation from outside into the inside and the capability of radical innovation". The aim of this research was to investigate the effect of open innovation from outside to inside on the capability of radical innovation with regard to the role of organizational inertia. The research was conducted on data from 2000 to 2016 in China's mobile phone industry. The data were analyzed by regression method. The results of this research showed that cognitive organizational inertia has a positive effect on the capability of radical innovation, but network organizational inertia has a negative effect on the capability of radical innovation. In addition, cognitive organizational inertia significantly modulates the impact of open innovation from the outside into the inside on radical innovation capability, but network

organizational inertia does not have such a moderating role. In this research, the positive and significant effect of open innovation from outside to the inside on the capability of radical innovation was also proven.

Fouad, Tourabi and Lakhnati (2018) published a research entitled "The impact of innovation processes on new product performance". This research was conducted to investigate the effect of innovation processes (consecutive innovation process and parallel innovation process) on the performance of new product development. This research was performed in the two qualitative and quantitative phases. The results of this research showed that there is a positive and significant relationship between the parallel innovation process and the performance of new product development.

Darawong (2018) published a research entitled "Dynamic capabilities of new product development teams in radical innovation implementation projects" This research was to recognize the dynamic capabilities of new product development teams and how these capabilities affect the performance of new product development in radical innovation processes. In this research, the data were collected through a closed questionnaire, and analyzed by structural equation modeling method. The results of this research primarily indicated the impact of radical innovation on new product development. Also, the results of this research showed that in the process of radical innovation, new product development teams should have the following four key capabilities: measurement, learning, integration and coordination.

RESEARCH CONCEPTUAL MODEL AND HYPOTHESES

According to the investigations conducted from the theoretical foundations and the research history, the following hypothetical model was designed as the research conceptual model:

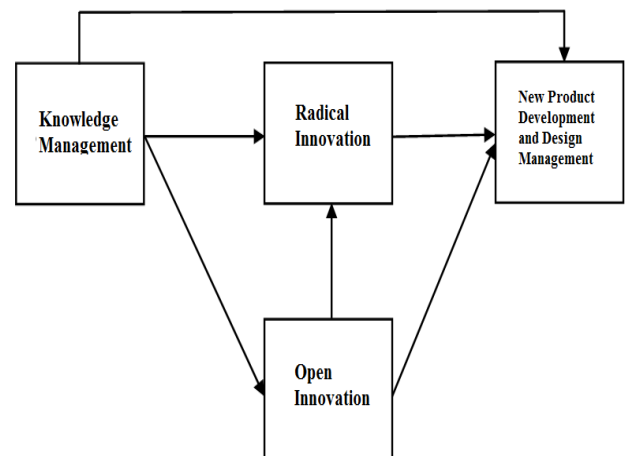


Figure 1: Research Conceptual Model (Researcher)

On this basis, the research hypotheses were compiled as follows:

- H₁: Knowledge management has a significant impact on the new services development in the insurance industry of Iran.
- H₂: Knowledge management has a significant impact on radical innovation in the insurance industry of Iran.
- H₃: Knowledge management has a significant impact on open innovation in the insurance industry of Iran.
- H₄: Open innovation has a significant impact on radical innovation in the insurance industry of Iran.

H₅: Radical innovation has a significant impact on the new services development in the insurance industry of Iran.

H₆: Open innovation has a significant impact on the new services development in the insurance industry of Iran.

H₇: In the impact of knowledge management on the new services development in the insurance industry of Iran, radical innovation plays a mediating role.

H₈: In the impact of knowledge management on the new services development in the insurance industry of Iran, open innovation plays a mediating role.

H₉: In the impact of open innovation on the new services development in the insurance industry of Iran, radical innovation plays a mediating role.

RESEARCH METHODOLOGY

This research is applied in terms of purpose, it is descriptive-survey in terms of approach and it is of causal studies type.

Statistical Sample and Population:

The statistical population of this research was the senior and middle managers of insurance companies active in Iran in the time interval of first quarter of 2020, that according to the estimation their number was 250 people. Based on the Cochran's formula, it was specified that at least 148 statistical samples were needed in this research. It should be mentioned that in this research, statistical samples were selected according to the available stratified sampling method.

Data Collection Tool:

The main tool used in this research was a researcher-made questionnaire consisting of four standard questionnaires that totally included 51 items in themselves. In this questionnaire, the answers were designed based on the Likert's five-point spectrum (from I completely disagree to I completely agree). In the table below, the structure of this questionnaire can be observed:

Table 1: Questionnaire Structure

Variable	Dimensions	Relevant Items	Source
Knowledge Management	Knowledge Acquisition, Creation and Production	1 to 6	Shafiei Nikabadi (2013)
	Knowledge Organizing, Maintaining and Storing	7 and 8	
	Knowledge Transfer, Sharing and Distribution	9 to 14	
	Knowledge Use, Application and Exploitation	15 to 20	
	Knowledge Assessment and Feedback	21 and 22	
Open Innovation	External to Internal Process	23 to 25	Wu and Hu
	Internal to External Process	26 to 28	
	Paired Process	29 to 31	
Radical Innovation	---	32 to 39	Song and Thieme

New Product Development	Customers' Participation in the New Products Development	40 to 43	Keszey and Biemans
	Financial Success of New Products Development	44 to 47	
	The Success of the New Products Development Market	48 to 51	

In the present research, face validity was used to investigate the validity of the questionnaire; in the way that at first the questions of the questionnaire were prepared and made available to some of the experts, specialists and professors in the field of management, and after investigating and commenting by the experts and professors and editing the questions, the final questionnaire was compiled. In addition, the validity of the research questionnaire was investigated through confirmatory factor analysis. The Cronbach's alpha method was also used to investigate the reliability of the questionnaire. Considering that Cronbach's alpha of all variables and the total questionnaire was obtained higher than 0.7, hence the reliability of the dimensions and the whole questionnaire were confirmed.

Data Analysis Tool and Method:

According to the type of research and the type of variables, descriptive statistics and inferential tests appropriate to the type of data and variables were used to analyze the statistical data and investigate the research questions using SPSS and Lisrel statistical software.

DATA ANALYSIS RESULTS

Demographic Characteristics of Respondents (Statistical Sample):

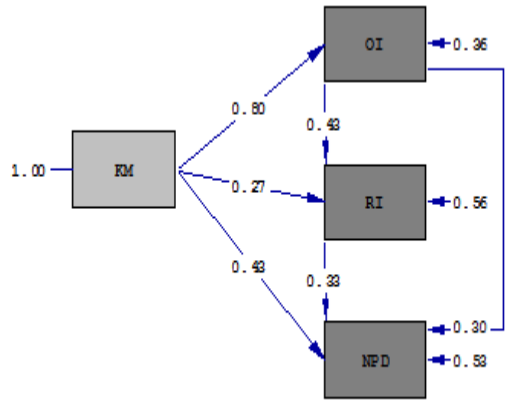
The following table presents descriptive statistics (frequency) regarding 148 statistical samples included in the research:

Table 2: Demographic Characteristics of Respondents

Variable	Frequency	Percentage	
Gender	Male	91	0.62
	Female	57	0.38
Age	Lower than 30 years	17	0.11
	30 to 45 years	43	0.29
	45 to 60 years	49	0.33
	Higher than 60 years	39	0.26
Education level	Associate	11	0.07
	Bachelor	46	0.31
	Master	64	0.43
	Ph.D.	27	0.18
Activity Experience in Insurance Industry	Lower than 10 years	38	0.26
	10 to 20 years	79	0.53
	20 to 30 years	19	0.13
	Higher than 30 years	12	0.08

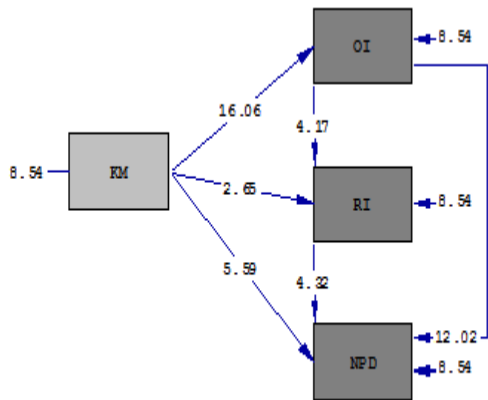
Testing Direct Hypotheses Using Linear Structured Relationships:

After determining the measurement models in order to evaluate the research conceptual model and also to ensure the presence or absence of a causal relationship between the research variables and to examine the appropriateness of the observed data with the research conceptual model, research hypotheses were also tested using structural equation model. The results of testing the hypotheses have been reflected in the diagram.



Chi-Square=1.76, df=1, P-value=0.00000, RMSEA=0.062

Figure 2: General Model of the Research in Standard Mode



Chi-Square=1.76, df=1, P-value=0.00000, RMSEA=0.062

Figure 3: General Model of the Research in Significance Mode

According to Figures (2 and 3), Table (3) shows the significance coefficient and the results of testing the research direct hypotheses briefly:

Table 3: Test Result of Direct Hypothesis

Hypotheses	Standard	Significance	Result
H ₁	0.43	5.59	Confirmed
H ₂	0.27	2.65	Confirmed
H ₃	0.80	16.06	Confirmed
H ₄	0.43	4.17	Confirmed
H ₅	4.32	0.33	Confirmed
H ₆	0.30	12.02	Confirmed

Mediating Hypotheses Test Using BootStrap Method

In order to test the mediating hypotheses, the BootStrap method in the Preachers and Hayes (2008) macro test program on the SPSS software

was used. The results of the BootStrap test for research mediating hypotheses have been presented in Table (4):

Table 4: Mediating Hypothesis Test

Mediating Hypotheses (Mediating Paths)	Data	Boot	Standard Error	Lower Limit	Upper Limit	Significance Level	Result
H ₇	0.0476	-0.0465	0.0220	-0.0987	-0.0095	0.0297	Confirmed
H ₈	0.0502	-0.0291	0.0282	-0.0873	-0.0076	0.0066	Confirmed
H ₉	0.0517	-0.0428	0.0302	-0.0775	0.0068	0.0331	Confirmed

DISCUSSION, CONCLUSIONS AND PRESENTING SUGGESTIONS

In the first hypothesis of the research it was claimed that knowledge management has a significant effect on the new services development in the insurance industry of Iran. Statistical analysis showed that the significance number between the two variables was equal to (5.59), that as this value is higher than (+1.96), so the hypothesis was confirmed. On the other hand, since the standard coefficient of this causal relationship was positive (+0.43), this effect was recognized to be direct. This means that in the insurance industry of Iran, knowledge management can improve the process of new services development. This result is consistent with the result of researches conducted by Voshkaienejad, Ebrahim Pouraziri and Dostar (2019), Khalilnejad and Daneshvar Deilami (2018), Mohammadi Moghaddam et al. (2018), and Sabaghchi, Ghazi Nouri and Elahi (2011).

In the second hypothesis of the research it was claimed that knowledge management has a significant effect on the radical innovation in the insurance industry of Iran. Statistical analysis showed that the significance number between the two variables was equal to (2.56), that as this value is higher than (+1.96), so the hypothesis was confirmed. On the other hand, since the standard coefficient of this causal relationship was positive (+0.27), this effect was recognized to be direct. This means that in the insurance industry of Iran, knowledge management can improve the process of radical innovation. This result is consistent with the result of researches conducted by Ritala et al. (2018), and Wang and Xu (2018).

In the third hypothesis of the research it was claimed that knowledge management has a significant effect on the open innovation in the insurance industry of Iran. Statistical analysis showed that the significance number between the two variables was equal to (16.06), that as this value is higher than (+1.96), so the hypothesis was confirmed. On the other hand, since the standard coefficient of this causal relationship was positive (+0.27), this effect was recognized to be direct. This means that in the insurance industry of Iran, knowledge management can improve the process of open innovation. This result is consistent with the result of researches conducted by Wu and Hu (2018), and Wang and Xu (2018).

In the fourth hypothesis of the research it was claimed that open innovation has a significant effect on the radical innovation in the insurance industry of Iran. Statistical analysis showed that the significance number between the two variables was equal to (4.17), that as this value is higher than (+1.96), so the hypothesis was confirmed. On the other hand, since the standard coefficient of this

causal relationship was positive (+0.43), this effect was recognized to be direct. This means that in the insurance industry of Iran, open innovation can improve the process of radical innovation. This result is consistent with the result of research conducted by Xi and Zhang (2018).

In the fifth hypothesis of the research it was claimed that radical innovation has a significant effect on the new services development in the insurance industry of Iran. Statistical analysis showed that the significance number between the two variables was equal to (4.32), that as this value is higher than (+1.96), so the hypothesis was confirmed. On the other hand, since the standard coefficient of this causal relationship was positive (+0.33), this effect was recognized to be direct. This means that in the insurance industry of Iran, radical innovation can improve the process of new services development. This result is consistent with the result of researches conducted by Moradi et al. (2017), Fouad, Tourabi and Lakhnati (2018), and Darawong (2018).

In the sixth hypothesis of the research it was claimed that open innovation has a significant effect on the new services development in the insurance industry of Iran. Statistical analysis showed that the significance number between the two variables was equal to (12.02), that as this value is higher than (+1.96), so the hypothesis was confirmed. On the other hand, since the standard coefficient of this causal relationship was positive (+0.30), this effect was recognized to be direct. This means that in the insurance industry of Iran, open innovation can improve the process of new services development. This result is consistent with the result of researches conducted by Moradi et al. (2017), Fouad, Torabi and Lakhnati (2018), and Darawong (2018).

In the seventh hypothesis of the research it was claimed that in the impact of knowledge management on the new services development in the insurance industry of Iran, radical innovation plays a mediating role. The results of data analysis based on the BootStrap test showed that the lower limit of confidence interval has been obtained (-0.0987) and its upper limit has been obtained (-0.0095). Considering that the number zero is located out of this interval, and the significance level (0.0297) is also obtained lower than (0.05), so the seventh hypothesis can be confirmed.

In the eighth hypothesis of the research it was claimed that in the impact of knowledge management on the new services development in the insurance industry of Iran, open innovation has a mediating role. The results of data analysis based on the BootStrap test showed that the lower limit of confidence interval has been obtained (-0.0873) and its upper limit has been obtained (-0.0076). Considering that the number zero is located out of this interval, and the significance level (0.0066) is also obtained lower than (0.05), so the eighth hypothesis can be confirmed.

In the ninth hypothesis of the research it was claimed that in the impact of open innovation on the new services development in the insurance industry of Iran, open innovation has a mediating role. The results of data analysis based on the BootStrap test showed that the lower limit of confidence interval has been obtained (-0.0775) and its upper limit has been obtained (-0.0068). Considering that the number zero is located out of this interval, and the significance level (0.0331) is also obtained lower than (0.05), so the ninth hypothesis can be confirmed.

Based on the results obtained from the research, in this section, some suggestions have been presented to the managers of the insurance industry of Iran in order to improve the new services development.

Considering that the effect of knowledge management on other model variables (open innovation, radical innovation and new service development) has been proven, it is suggested that:

- In insurance companies, there should be a continuous partnership with customers to assess their needs.
- In insurance companies, there should be a lot of sensitivity to market change and developments.
- Insurance companies try to be aware of the science of modern industry, and the results of new researches in this industry.
- In insurance companies, there should be various discussion and conversation groups to present idea with the aim of creating innovation in services and service delivery processes.
- In insurance companies decision-making opportunities should be provided for the promotion and updating employees' skills.
- In insurance companies, knowledge-based and specialized employees in various working fields should be recruited and retained.
- In insurance companies, everyone should have access to the resources of knowledge, and the results of performed projects.
- In insurance companies, people's experiences are continuously recorded, updated and revised.
- In insurance companies, there should be interdisciplinary meetings and groups to examine various market trends.
- In insurance companies, a strong and open culture should be created and strengthened to share information and accept consultation.
- Senior managers of insurance companies encourage and support the sharing of knowledge and information.
- In insurance companies, different databases and knowledge reserves should be used and updated to improve process quality.
- In insurance companies, there should be two-way organizational communication between senior managers and employees.
- In insurance companies, the ratio of knowledge intervention in the production and new services development should be strengthened.
- In insurance companies, appropriate access should be provided for employees requiring organizational knowledge and experience.
- In insurance companies, employees should be interested in doing knowledge-based activities and using knowledge while doing work.
- Insurance companies react appropriately to the knowledge gained from customers.
- Insurance companies react appropriately to the technological changes of competitors.
- Insurance companies should properly adapt their processes to the knowledge gained from technological changes.
- The capability of employees in insurance companies should be improved.
- The average time to solve a problem in the insurance companies should be improved.

With regard to proving the impact of radical innovation on the new services development, it is suggested that:

- Insurance companies get a lot of information from suppliers in their initial plannings to provide new services.
- Insurance companies, in the process of commercializing their new services, obtain high information from suppliers.

- Insurance companies try to improve their performance.
- Insurance companies try to improve their market share.
- Insurance companies should highly focus on sellers.
- Insurance companies try to enter new markets.
- Insurance companies try to take steps in order to reduce their costs.

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