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The effects of human resource strategic management, open innovation capacity on the Islamic Republic of Iran Broadcasting

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Abstract

Today human resource is considered as one of the most important organizational assets in companies. Organizations constantly try to increase the capability and capacity of their employees by correct management of their human resources. Human resource management in organizations is considered as an essential strategy which can increase company's capabilities in human resources by focusing on recruiting, training and motivating the employees. Human resource in an organization is one of the main sources of innovation in a company. A more creative and motivated human resource has more influence on organization's innovation and eventually has direct impact on company's performance. This study tries to analyze the effect of human resource management on organization's innovation and performance through the use of structural equation analysis model in SPSS and LISREL software. The results of this study and the proposed model is examined in the Islamic Republic of Iran Broadcasting and the results show that human resource management has a positive effect on innovation and performance of the organization.

Keywords: coaching approach, human resource management, organizational performance, structural equation modeling

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Introduction

Innovation is the application of modern ideas of creativity. In fact the implementation of creative ideas for a product or service that is fresh is called innovative.

Innovation occurs when the idea is developed as a product, process or service. Many definitions of innovation have been presented. Peter Drucker believes that innovation, like any other objective activity, along with innovation and ingenuity requires knowledge, focus and hard work of all who are involved. In his opinion what is common among entrepreneurs is not a certain type of character, but a systematic commitment to innovation. Michael Tashmn believes that innovation is the victory bed in business for managers in order to identify IT mechanisms and innovation streams, with the help of discontinuous changes in the organization, to get concessions from them. Creativity and innovation are not a mystery talent of people. But are daily activities to create relations that are previously unseen. and communication of the issues that normally are not together. Of course, there are also innovations in the shadow of sheer genius, but most innovators, especially the victor innovators in this field, have achieved their goals through conscious and purposeful search of the rare opportunities. Holt defines the term of innovation in a broad sense, as the process for the use of knowledge or information, in order to create or introduce something new and useful to user. He also explains that innovation is anything revised and designed to become reality that strengthen the organization's position against competitors and also provide a long-term competitive advantage. In other words, innovation is something new that has followed a specific target and is implemented. Innovation is not a phenomenon that occurs only once, but an ongoing process and consists of organizational decision-making process at all stages, from the development of new ideas as to its function. In the process of applying new ideas, as a product, process or service, reducing costs and increasing productivity must be taken into consideration.

Innovation practices in different countries are different. Differences in economic and social conditions and characteristics of national innovation systems, including: power research and development systems, governance systems, power systems, intellectual property rights and education, on innovation practices adopted by the institutions, influence preference or habit they generate ideas and technology within the organization and their willingness to meet part of the knowledge needed for innovation from outside. One of these practices is "open innovation" that from one perspective, is the intended use of the flow of knowledge, in the form of ideas, science and technology, both within the organization and outward of it, in order to accelerate the process of innovation within the organization or expand the market for external use of organization innovation. Innovation can affect the performance of the organization. In fact, organizations use innovation to promote new product or service and the development of new products and services could affect the performance of the organization. IRIB as one of the most important cultural authorities in the country should provide cultural products and cultural services. In fact, IRIB must work in the form of new products and services to influence the community. Considering the development of information sharing tools, IRIB should benefit from open innovation approach for the development of cultural services.

But the capacity for innovation is under the influence of human resource management. The definition of human resource management is policies and measures needed for implementation of parts of management Task, which depend on some aspects of the activities of its employees, especially for staffing, staff training, performance evaluation, rewarding and creating a healthy and fair environment for employees. There are two general approaches in human resource management hard approach and soft approach.

Hard approach: looks at employees the same as other sources, so input-output equation must be established and effectively managed.

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Soft approach: pays more attention to the fact that employees cannot be treated like any other resource. Because, unlike other resource human resource, think and react. This approach focuses more on the strategies for achieving the commitment by notifying the staff of the mission, values, organization programs, environment conditions, employee participation in decision making process and classification of employees in work groups without official surveillance.

In fact, the hard approach focuses on personnel management process, while soft approach focuses on the attitudes of employees and how to handle them. Hard approach examines systems, procedures and guidelines and how to implement processes. Soft approach takes into account the human factors and behavior.

Several studies have been conducted in the field of open innovation. Some of them are mentioned in the following:

Saebi and Foss (2015), in an article discuss open innovation business model. Research, on Open Innovation, shows that corporate profits can be gained from various open innovation strategies. Of course, its exact reason is not clear. One explanation could be the lack of a business model consistent with open innovation. In this study, we present a business model consistent with open innovation. Also in this study, the difference of the mentioned model with 4 types of common business models is presented.

Belushi et. al. (2015), in a research develops biotechnology from open innovation perspective. In knowledge-based economies, the ability to innovate is a key factor in competitive advantage in organizations and that can only be achieved through innovation. In this study, the biotech companies in Oman have been studied and it has been shown that an increase in the use of open innovation enhances collaboration and improves the function of this area's organizations.

Gisti et. al. (2014) conducted a study to examine the model of open innovation in 11 European countries. In this study the role of knowledge resources on the innovation environment in organizations is examined. The open innovation paradigm has been developed in an environment of innovation. The results indicate a non-linear relationship between knowledge resources on the innovation environment.

Cui et al. (2014), in a research study information technology and open innovation from strategic perspective. Development in information technology has led companies to increasingly dependent on opened technology. The researchers also became interested in this phenomenon. From this perspective, a lack of research to examine the relevance and impact of information technology on open innovation in organizations exists. In this study, it has been tried to be dedicated to this issue. This research was conducted on 225 Chinese companies and its results reflect the impact of information technology on the development of open technologies.

Ragbeer et al. (2014) in a paper examine the efficiency of open innovation. In this study, the massive design of the unified portfolios of companies on open innovation has been examined. The three pillars of massive designs, which are internationalization, technology oriented and diversity in partners were studied and the results has been evaluated based on data extracted from 982 companies.

Du et al. (2014) in an article review open innovation project management, considering the knowledge-based and market-based partners. In this study, they examined the relationship between open innovation partnerships and financial performance in research and development projects. When research and development projects are with knowledge-based partners, if they have a more balanced management, it has better performance. But with market-oriented partners, more formal management is more effective.

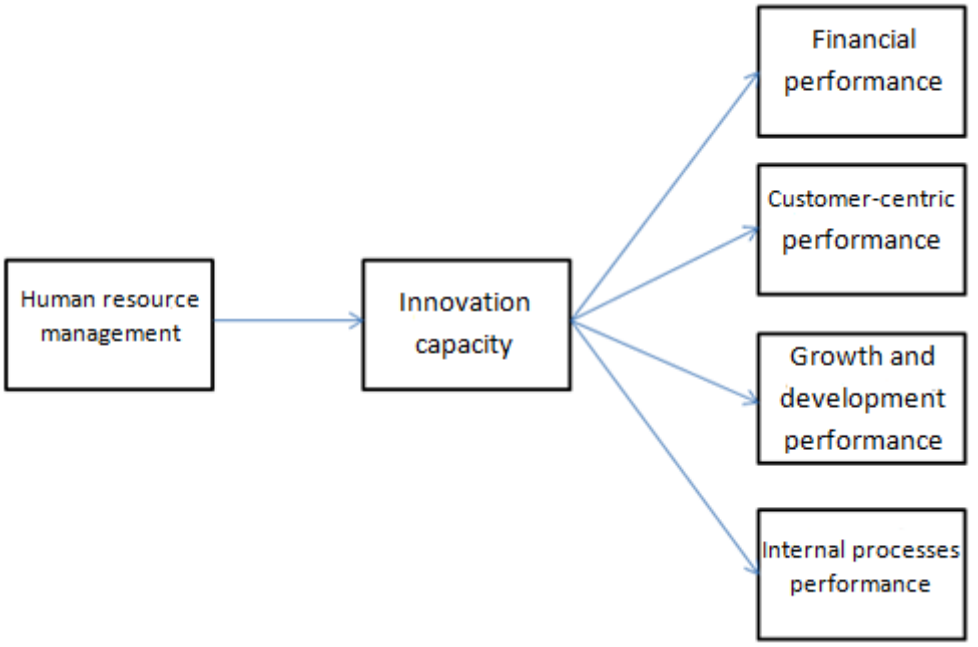
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Poot et al (2014) in a study examine the effect of intra-organizational factors and inter-industry communications between companies on development of innovation. In their research, they examine the effect of degree of openness of a company in the exploitation of technologies developed in company's industry. If an organization act more open, it can rely on development of its technology needed technology or exploitation of the developed technologies in other organizations. In addition to openness, factors such as motivation system as well as cooperation between companies of one holding have been examined and evaluated in this study.

In this research an effort has been made to examine the effect of strategic management of human resources on open innovation capacity and its impact on the performance of the Islamic Republic of Iran Broadcasting. To achieve this goal, the structure of this study is as follows. In the second part, the theory and analysis model will be discussed. The third section the results of data analysis are presented and in section four Conclusion and summary results are given.

Hypotheses and analysis model

In this research an effort has been made to examine the effect of strategic management of human resources on open innovation capacity and its impact on the performance of the Islamic Republic of Iran Broadcasting, the conceptual model of this study is as follows:



The hypotheses of this study are defined as follows:

Human resource management influences the innovation capacity.

Innovation capacity has an impact on financial performance.

Innovation capacity has an impact on customer-centric performance.

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Innovation capacity has an impact on the growth and development performance.

Innovation capacity has an impact on the internal processes performance.

To investigate these hypotheses structural equation analysis approach is used. "SEM" is a multivariate analytical technique from a very powerful and general multivariate regression, more specifically, is the development of "general linear model", That allow researchers to examine a set of regression equations simultaneously. Structural equation modeling is a holistic approach to test hypotheses about the relationship between observed and latent variables that sometimes is called covariance structure analysis, or factor modeling or sometimes "LISREL". But the prevailing phrase these days is structural equation modeling or SEM.

From researchers' perspective, also one of the strongest and most straightforward ways of analysis of behavioral and social sciences research is multivariate analysis. While these kinds of subjects have several variables and cannot be solved with two variables (every time an independent variable or a dependent variable is considered).

Analysis of covariance structures, or SEM, is one of the main methods for analyzing complex data structures, and a new method to assess cause and effect relations. And statistically analyzing various factors that are a structure based on theory show the simultaneous effects of variables. Through this method we can test the acceptability of certain theoretical models using data correlation in a specific community with non-experimental or experimental tests.

To achieve this purpose, information was collected through questionnaires and from 112 Islamic Republic of Iran Broadcasting executives.

The following analysis is presented.

Results of data analysis

In this section, the results of data analysis are given. First, the reliability results of the questionnaire are given. The results of each group of variables are as fallows.

For studying the reliability of the questionnaire, the Cronbach's alpha coefficient was used. Cronbach's alpha coefficient was introduced by Cronbach. It is one of the most common methods of measuring the reliability or credibility of the questionnaires. The purpose of reliability or credibility of the questionnaires is that if the examined properties were tested again, with same devices and in the same condition but in different times, almost the same results would be gained.

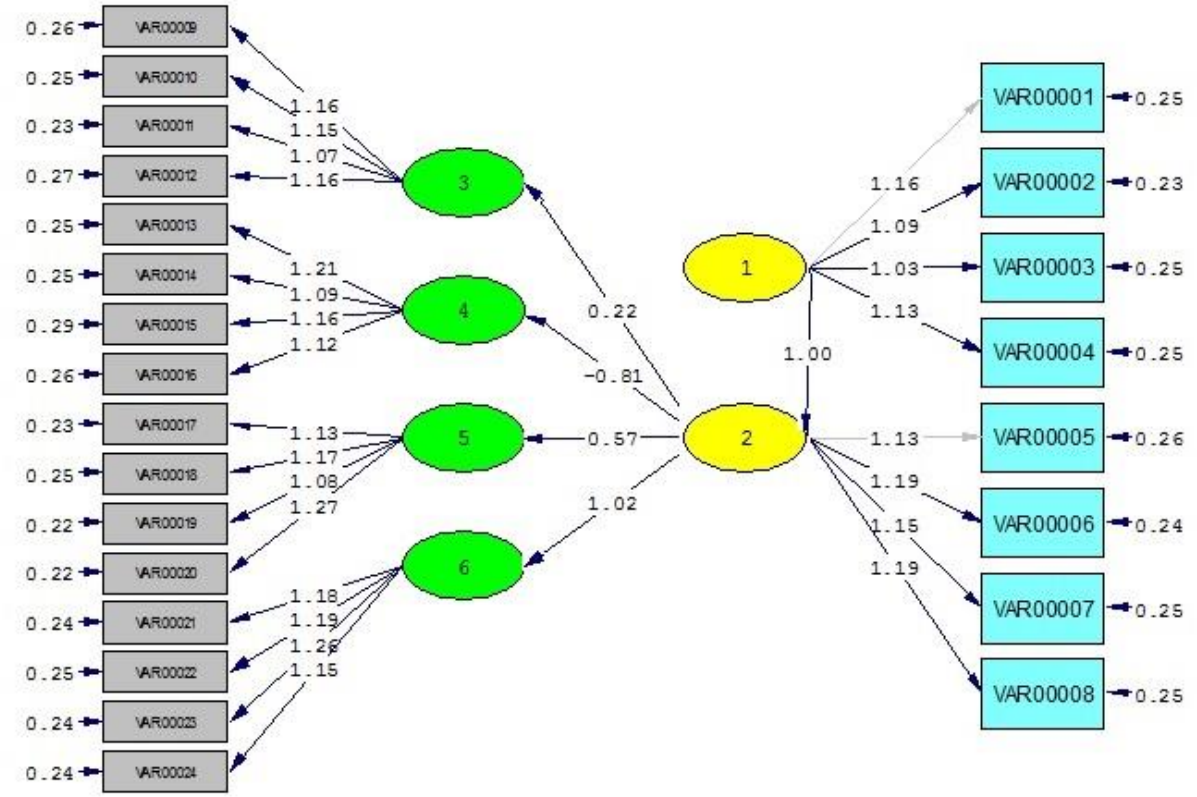
In factor Analysis, first it should be ensured that the existing data can be used for analysis. On the other hand, is the number of data enough for factor analysis or not? For this purpose, the KMO index and Bartlett's test were used. The KMO index is an indicator of sampling adequacy. This indicator is in a range from 0 to 1. If the index is close to 1, the data is suitable for factor analysis; if not (usually less than 0.5) the results of factor analysis are not appropriate for data in question. The Bartlett's test studies the time that known correlation matrix (mathematically) is an identity matrix and hence is not suitable for identifying the structure (factor model). If the significance level in Bartlett's test is less than 0.5, factor analysis is suitable for identifying the structure. Because the hypothesis of correlation matrix being known is rejected. After deciding the suitability of KMO index, and the significance of Bartlett's test, for studying the validity of structure, the loading factor is used. There are different opinions about the basis

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of significance of these loadings. But based on an empirical regularity, which was suggested by statisticians and researchers who repeatedly used the factor analysis, it is suggested that loading factors higher that ±0.3 can be considered significant. Loading factors higher that ±0.4 have higher significance level and loading factors higher than ±0.5 are considered at most significance level (Kalantary, 1391). In this research, for ensuring the suitability and validity, if the value of loading factor for an item is less than ±0.3, it is excluded from analysis.

Number	Variable name	Cronbach's alpha test	Bartlett's test results	KMO test results
1	Human resource management	0.951	0.000	0.869
2	Open innovation capacity	0.956	0.000	0.877
3	Financial performance	0.953	0.000	0.867
4	Customer-centric performance	0.951	0.000	0.874
5	Development performance	0.958	0.000	0.875
6	Internal processes performance	0.959	0.000	0.879

Analysis Chart of the model structure is as follows:



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The results of Bartlett's test and KMO, as indicators of sampling adequacy, show that both indexes values are in a suitable level. The KMO index is higher than 0.5 for every variable and the significance level of Bartlett's test is less than 0.05. After ensuring that the sample sizes are adequate, the loading factors of items were measured. As it is shown in the chart above, the loading factor of every item is higher than 0.4. In this step, the model suitability index is proposed. This index shows to what extent the proposed model can be fitted.

Average root index is the root mean square residual (RMR). This is in fact the difference between the observed matrix elements in sample groups and the predicted matrix elements, assuming that the model was correct. Fitted residues are obtained from the difference between samples covariance matrix and fitted covariance matrix. The closer this index to the value of zero, the better suitability the model has.

In this study the value of RMR is as below:

Root Mean Square Residual (RMR) = 0.022

Goodness of Fit Indices of GFI and AGFI do not depend on sample size and show that in what extend the model has better suitability to the absence of it. GFI is calculated according to the following equation,

In this equation $\sum($ represents the covariance structure for the random observed variables, S represent the covariance of group sample,$\hat{\theta}$ is a value of θ which minimize the value of $,\sum(\theta))$. If all of the parameters of model are equal to zero the goodness function is $,\sum(0))$. This index, in fact, evaluates the relative amount of variance and covariance, in the same way, using the model and the range of changes is between zero and one.

No matter how similar the GFI index is to $R^{2,}$ it cannot be interpreted as an explained error percentage. Because it is an observed covariance percentage which is explained by dictated covariance of the model. Since the GFI value is usually higher than other indicators, some researchers have suggested the cut-off point of 0.95. According to the contract the GFI value must be equal or higher than 0.9 so the model can be accepted.

The adjusted goodness of fit index for freedom degree (AFGI) is calculated using the equation below:

Where *K* is the number of sizes in the model and *d* shows the model's freedom degree. Although it is theoretically possible that GFI and AFGI values are negative and insignificant, minimum amount of GFI and AGFI have to be zero. However, negative amount of these indicators shows that this model is extremely poor. *AFGI>1* associates completely similar models and *AFGI>0* associates models with poor goodness of fit or is based on samples with small size. The value of suitable AFGI is close to one.

For fitted model the GFI and AFGI values are obtained as follow:

Goodness of Fit Index (GFI) = 0.84

Adjusted Goodness of Fit Index (AGFI) = 0.80

The root mean square is approximate. This index is defined as the differentiated amount of each freedom degree. The amount of this index, which actually is the deviation test of each freedom degree, for models

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with suitable goodness fit, is less than 0.05. values higher than 0.08 shows reasonable error for approximation in the population. Models with values more than 0.1 have poor goodness fit.

The value of this index, in fitted model, is as follow:

Root Mean Square Error of Approximation (RMSEA) = 0.019

The related indicators try to answer the question that how well does a particular model, compared with other models, for defining a set of observed data, works. Most common related models are known as zero models, because in variance – covariance matrixes, only the variance matrixes are fitted and all the covariance matrixes are considered as zero. Some of the related indicators, which is called type one, compare two different fitted models. One of the most common type one related indicators, which were used in a wide range before, is softened goodness fit index (NFI or DELTA1) which the chi- square tests are not required. Since this index is under effect of sample size and is poor for small size samples, is not suggested. Other indicators which are called type two indicators. On one hand, these indicators compare the models and on the other hand provide information on the expected value of models under a central chi-square distribution. There are several type two indicators which are used in variety of situations and comparing to type one indicators have more coordination with sample size.

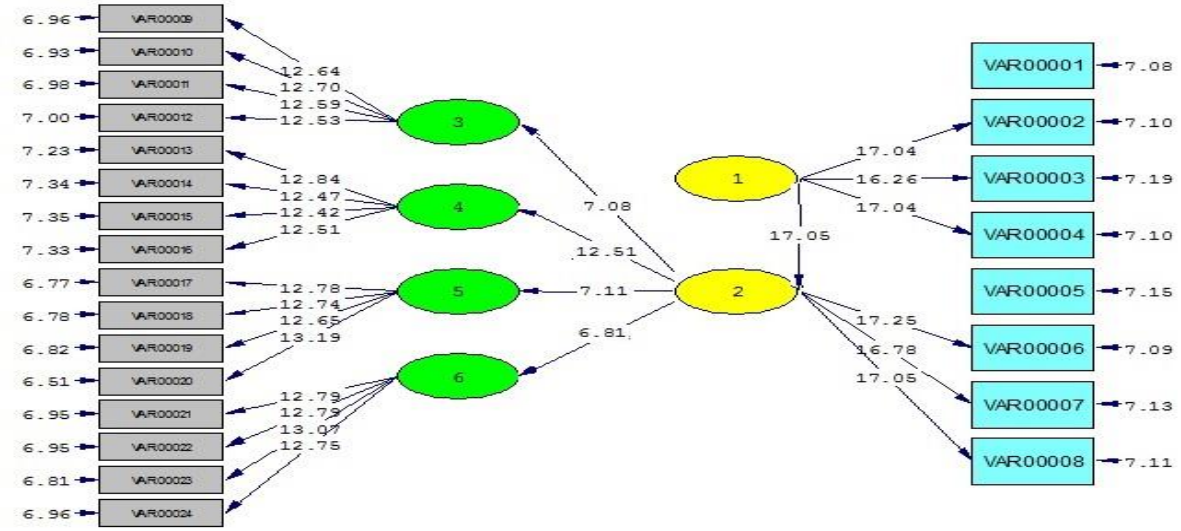
These values for fitted models are as follow:

Normed Fit Index (NFI) = 0.99

Non-Normed Fit Index (NNFI) = 1.00

Since these indexes are great indicatives for fitting models, it can be claimed that the proposed model can define the relationship between the variables. Hence, the reliability of the results of t-test is assured.

Hypothesis test results are as follows:



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Results summary of testing hypothesis is as follows:

Number	hypothesis	Path coefficient	t value	Test results
1	Human resource management affect the capacity of innovation	1.00	17.06	Valid
2	Capacity of innovation affect the financial performance	0.22	7.08	Valid
3	Capacity of innovation affect the customer orientation performance	-0.81	12.51	Valid
4	Capacity of innovation affect the growth and development performance	0.57	7.11	Valid
5	Capacity of innovation affect the internal processes performance	1.02	6.81	Valid

Human resources affect the open innovation and broadcasting organization. Considering the results of this study, the importance and influence of innovation management in organizational performance is observed. In fact open innovation improves the performance and the open innovation itself is affected by human resource management.

Conclusion

Open innovation and the ability of absorbing are two substantial concepts in innovation management researches. The ability of absorbing companies shows their ability to extend the ideas and foreign technologies. In this study the two concept of open innovation and ability of absorbing are linked and the definition of ability of absorbing is explained using the modern viewpoints in open innovation. Due to factors such as technology's short life cycles, emerging technologies, costs and risks associated with technology, globalization of research and development processes, increasing competition among firms in their products' markets and the growing importance of investment in order to finance the business ideas, foreign technology sources are at importance and knowledge flow is necessary for competition. But this trend is not constituted automatically and corporations must expand their skills to move towards them. This is why the ability to attract is very important and that is why some companies are better than others in creating and gaining value and acquiring developed foreign technologies.

The results show improved performance of human resources as the most important resource of the organization, can directly affect the innovation capacity of IRIB and indirectly affect the performance of IRIB. The results of this study make it clear that IRIB innovation is at an acceptable level and leads to performance improvement.

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