

Studying the Effects of Electronic Human Resources Management (e-HRM) on Organizational Efficiency Case Study: The Information Technology Organization of Isfahan Pouyan Net

Mina Babazadehfarokhran¹, Rogaye Rezaeegiglo², Afshin Samandary³

^{1,2}Young Researchers and Elite Club, Germe Branch, Islamic Azad University, Germe,

³Department of management Bilesavarmoghlan Branch, Islamic Azad University, Bilesavarmoghlan, Iran

*Corresponding Author

Mina Babazadeh Farokhran

Email: minafarahzan@gmail.com

Abstract: Increasing development in human knowledge, the influence of information technology and emergence of electronic topics has made great changes in organizations, including changes in management of the most important resources, i.e. human resources. This paper aims at studying the probable influence of e-HRM on the organization efficiency and, for achieving this goal, the information technology organization of Isfahan Pouyan Net is under investigation. Therefore, the methodology used in this paper is applied and the analyses are done by correlation, regression and T-student. The number of statistical population is all the staff in this organization and the number of sample is 50 individuals. The tools used for collecting data in this paper are a questionnaire developed by the principals of e-HRM and the efficiency components of the organization, and its validity and stability have been approved by the scientific methods. The stabilities of the first and second questionnaires are verified by the Cronbach alpha coefficient as 0.818 and 0.955 respectively. The results show that the establishment of e-HRM system in the information technology organization of Isfahan Pouyan Net leads to comprehensive collection of information about the staff by using the information gained from the employee, the employee's position in the organization, well-timed use of the organization's structure, occupational functions and the reports of the relations and job promotion and etc, which all result in increase in the organization efficiency

Keywords: Human Resources Management, e-HRM, HR, Efficiency

INTRODUCTION

Given the developments in sciences and technology as well as increase in using the internet, computer and organizational software, the human resources management section should proceed along with other branches of science and replace the old methods with the modern technologies; in fact, the management of this section should direct the human resources development on the basis of information technology toward more development. If an organization cannot adapt with these changes, it cannot continue competition with the others in the present world. The goal of electronic human resources management is applying the new business model in organizations, which is accompanied by the goal of increase in human force efficiency and saving in financial resources as well as providing faster access to the needs of the human force.

Along with the globalization in business and internet development, we may be able to see a digital or integrated workplace. The Internet will help to create an integrated world economy. In the present world, there is

no popularity for the old idea "one size for all". The key solution for this problem is applying the global business techniques.

THEORETICAL FOUNDATION AND LITERATURE

Dozens of years, doing the important tasks as employing, training, and compensating the employees' services were of the main tasks of a section called staff management. But, it had developed by emerging the human resources management. The human resources management is a comprehensive approach on the main organization's resources management, i.e. the human resources. The human resources management is not only an approach based on the efficiency toward the staff management, but a special approach toward the relations among the staff with the emphasis on the commitment and its mutuality [1]

Rapid progress in using the Internet, particularly in the area of the human resources, has led to an increase in applying the electronic human resources management. Today, some factors such as

online employment, staff websites and electronic training are, in the global dimensions, vital factors for enabling an organization to continue its activities. However, any organization should consider each factor before applying and study different aspects of applying. Expanding the economic equality, the only distinction among organizations is the staff. In this intensive global competition, there is special conditions in attracting the elite. Therefore, any organization means to move along with the others should enjoy the opportunities developed by the new technologies .[2]

The electronic human resources management (e-HRM) was used in 1990s for the first time. Although e-HRM is widely used, it is so difficult to present a clear definition; it emphasizes more on online supportive aspect of the activities and/or the human resources policies. Given the available definitions, we may illustrate the meaning of electronic human resources management:

e-HRM is defined as planning, executing and applying the information technology in order to classify and support at least two people or some in the basis of doing common human resources activities. It highlights some important and vital dimensions of the electronic human resources management. First, technology is important and essential for connecting the people and making relationship among them without considering this fact whether they are working in the same room, or in different continents. It means that technology is used as a way to connect and make people united. Second, technology, partially and sometimes totally, supports people in doing HR executive activities.

e-HRM is applying technology based on the Web for the human resources management policies and activities in inter-organizational life [3]

e-HRM is defined as the way of applying strategies and policies and the human resources management activities in organizations by a directed and conscious support, which is done by using complete application of the channels on the basis of the Web technology .[4]

The objectives of the electronic human resources management

There has been noted 4 necessities for the figurative human resources management. First, the human resources management departments are asked to focus on the strategic questions. Second, these departments should be flexible in policing and practical activities. Third, HRM departments should work efficiently, and be aware of the costs. Fourth, the human management departments should provide services to the management and the staff. Shortly, HRM departments

should focus on the strategy, be flexible, efficient and provide services to the customers; they should own all simultaneously.[5]

The human resources management functions

One of the electronic human resources management applications is electronic education [6]The electronic education includes educational or training periods which are provided by the synchronic or asynchronous educational means such as letter, book, graphic, movies, CDs, online education, television, interaction conference videos, picture mails, and the Internet. These different forms of technology allows the organizations to provide education for the staff all over the world, and hence, decrease the costs of the face to face educational programs .[7]The human resources management also can influence on the Web-based system selection .[8]Electronic rewarding can affect designing the efficient way of rewarding, appropriate distribution of the rewards, the reward-function relation and the advantages of quick access to the information. Therefore, it helps the manager in doing all these tasks .[9]

Efficiency

This term was used for the first time by FrancoisKene, the mathematician and economist who was for physiocracy school (the nature dominion). he designed an economic chart and knows the power of any government dependent on the increase in efficiency in agriculture. In 1883, another French man named Litere defined efficiency as knowledge and technique. By starting the scientific management movement in the beginning of 1900s, Fredric Wenislow, Tailor and Frank, and Lillian Gilbrith did some researches on the job distribution, method improvement, and determining standard time in order to increase efficiency.

In most developed countries, efficiency means maximizing the application of the resources, human force, facilities and similar issues scientifically as well as decreasing the production cost, expanding markets, increasing employment and trying to increase actual wages and promoting the standards of life in a way that benefit staff, management and people.

It is illustrated in the statement of establishing Japan efficiency center in 1955 that "efficiency is maximum use of the physical resources, human force and other factors in a scientific way as such that improvement in efficiency leads to decreasing production cost, expanding markets, increasing employment and rising the standards of life for all people" [10]

The efficiency components

Efficiency is one of criteria for measuring the activities. As the human activities are not without any goal or nonsense, so in studying the efficiency, we may

study the relation of efficiency with its objective from two distinct angles.

On one hand, the role of proficiency and effectiveness of these activities available for achieving the designed objective are under question. On the other hand, the output of these activities is under investigation. In this context, we may classify the efficiency in two components:

The first component is proficiency and the other is effectiveness.

- Proficiency: The ability of achieving more output out of less amount of input (working well)
- Effectiveness: Adjustment of results with the given objectives (good-work)

Three main strategies to improve efficiency

Once the total efficiency increases, the finished cost per unit decreases. Therefore, considering the relation between total efficiency and this fact that "price=finished cost+ profit",we may provide three ways for efficiency:

- Lower price results in more contribution in the market and hence, more profit in the future
- Last price but earning more profit per unit
- Lower price and more profit simultaneously

Hypotheses

The electronic human resources management affects the efficiency in organization.

Secondary hypotheses

- Analyzing and designing an electronic job affects the efficiency in organization.
- Electronic employment affects the efficiency in organization.

- Service compensation and electronic premium affects the efficiency in organization.
- The management of connection with electronic clients affects the efficiency in organization.

METHODOLOGY

This research was done in summer 2012. The method used in this descriptive research is of survey. The statistical population is all the clients in the information technology organization of Isfahan Pouyan Net. The size of sample selected by the formula n and the confidence level 0.95 and random systematic sampling method was about 50 people. The tools for collecting data was two questionnaires made by the researchers. The first questionnaire was related to e-HRM and the second one measured the efficiency of organization, related to the components proficiency and effectiveness. The options in these questionnaires are based on 5-option Likert spectrum. The validity of the questionnaires is verified by the experts, and the stabilities confirmed by the Cronbach alpha method were .818 and .955 for the first and the second questionnaire respectively. The analysis of data was done by correlation coefficient, regression analysis and T-student.

Data analysis

For analyzing the first hypothesis, we measured the means of the answers got about e-HRM. Then the average of the answers was calculated per the efficiency components in the organization. The results are shown in the following Tables:

Hypothesis 1:

Analyzing and designing an electronic job affects the efficiency in organization.

Table 1: The descriptive data related to the gender

	Frequency	Frequency percent	The cumulative frequency percent
Male	39	78	78
Female	11	22	100
Total	50	100	

Table 2: The results of the regression model of the relation between analyzing and designing an electronic job in the efficiency of the organization

Standard error	Adjusted coefficient	The square of the correlation coefficient	The correlation coefficient	Significance level	F	Mean square	df	Sum of squares	
0.938	0/121	0.1211	0.348	0/013	6.626	19.702 .619	1 48 49	6.405 46.400 52.805	Regression Residual

As shown in Table 2, the correlation coefficient between the analyzing and designing an electronic job and the efficiency of the organization, i.e. 0.348 and the determination coefficient was 0.121. It means that the analysis and design an electronic job components that are more than 12% explain the changes of the efficiency in the organization. Given the statistical value F 6.626 the table of variance analysis that equals with the freedom degree (1 and 48) and the significance level 0.000 and comparing this level with $\alpha=0.05$, we

may reject the zero hypothesis based on neutrality of analyzing and designing a electronic job on the efficiency of the organization. In other words, there is significant relation between existence and quality of service compensation and the electronic premium and the efficiency in the organization.

Hypothesis 2: Electronic employment affects the efficiency in organization.

Table 3: The results of the regression model of the relation between the electronic employment in the efficiency of the organization

Standard error	Adjusted coefficient	The square of the correlation coefficient	The correlation coefficient	Significance level	F	Mean square	df	Sum of squares	
1/74	0/76	0.094864	0.308	0/000	5.028	89.81	1 48 49	15.233 145.34 160.62	Regression Residual

As shown in Table 3, the correlation coefficient 0.308 and the determination coefficient 0.76 were resulted. It means that the components of service compensation and electronic premium more than 76% explain the changes in the efficiency of the organization. Given the statistical value F the table of variance analysis 5.028 equals with the freedom degree (1 and 48) with the significance level 0.000 and comparing this level with $\alpha=0.05$, we may reject the

zero hypothesis based on neutrality of analyzing and designing a electronic job on the efficiency of the organization. In other words, there is significant relation between analyzing and designing an electronic job and the efficiency in the organization.

Hypothesis 3: The management of connection with the electronic client affects the efficiency in organization.

Table 4: The results of the regression model of the relation between connection with the electronic client and efficiency in the organization.

Standard error	Adjusted coefficient	The square of the correlation coefficient	The correlation coefficient	Significance level	F	Mean square	df	Sum of squares	
1/013	0/33	0/345	0.558	0/000	28/23	82.51	1 48 49	26.041 49.339 75.380	Regression Residual

As shown in Table 4, the correlation coefficient 0.558 and the determination coefficient 0.33 were resulted. It means that the components of the management of the connection with the electronic client more than 33% explain the changes in the efficiency of the organization. Given the statistical value F the table of variance analysis 28.33 equals with the freedom degree (1 and 48) with the significance level 0.000 and comparing this level with $\alpha=0.05$, we may reject the zero hypothesis based on neutrality of analyzing and

designing a electronic job on the efficiency of the organization. In other words, there is significant relation between the management of the connection with the electronic clients and the efficiency in the organization.

Independent T test

There is a significant difference between men and women's opinions about creating an electronic exchange.

Table 5: Independent T test

	number	Average	Standard deviation	t	Df	Sig	Result
Male	39	3/35	0/95	1/64	50	0/147	There is no significant difference
Female	11	3	0/82				

Based on the results shown in Table 5, as $\text{sig}=0.147$ and more than 0.05, so H_0 can be accepted. That is there is no significant difference between men and women's opinions about positive effect of the electronic human resources management on the efficiency.

DISCUSSION AND CONCLUSION

The result show that there is a significant relation between applying the electronic human resources management (e-HRM) and the efficiency in the organization. The electronic human resources management as a set of generated thoughts is available by the hardware mechanisms, and has a great role in developing the human resources. Information technology and the electronic human resources management have effective role in professional development, institutionalization of changes and innovation, increasing commitment and competence and competency as well as decreasing costs. They cause development in human resources. All these factors increase proficiency and effectiveness, and hence the efficiency in the organization.

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