Business & Social Science
IJRBS

Research in Business & Social Science

IJRBS VOL 9 NO 1 ISSN: 2147-4478

Available online at www.ssbfn.net

Journal homepage: <https://www.ssbfn.net/ojs/index.php/ijrbs>

Improving the efficiency of human resources with the use of new technologies and reorganization process

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ARTICLE INFO

Article history:

Received 07 December 19

Received in revised form 20 Dec 19

Accepted 25 December 19

Keywords:

Diversity

Cooperation

Teams

Organizational Effectiveness

JEL Classification

015

ABSTRACT

Information technology (IT) as a structural factor and instrument transforms the architecture of organizations, business processes and communication which is increasingly integrated into human resource management (HRM). It is an important part of the human resources work process. IT is designed to support HR professionals at all stages of management. This paper is focused on analyzing how information technology affects the improvement of human resource efficiency. The survey was conducted in private enterprises in Ferizaj, region (Kosovo), through questionnaires. Twenty employees/managers of manufacturing enterprises were surveyed who were well informed about the role of human resources in general and the impact on the efficiency of information technology. The results of the empirical study show that the use of new information technology improves the efficiency of HR and enhances the performance of the enterprise.

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Introduction

Human Resources are the most significant and vital for the success of any organization. Competition between companies is currently a human resources competition. The process of development and growth, without human involvement is ineffective; because human is the goal and means of achieving development (Rohilla, J, 2017; Kolinsky, 1998; Alami *et al.* 2016).

By using the information technology (IT), human resource (HR) has significantly increased their efficiency on management activities and processes also has increased their speediness and reduced cost. As explained by Bulmash (2008), HR technology can be defined as any technology that is used to attract, hire, retain, and maintain human resources, support HR administration, and optimize HRM.

Information technology has created an effective and efficient communication system, talent management, employee engagement, employee development, training and learning. In addition, the use of HRIT provides value to the organization and raise HR professionals' status in the organization (Ulrich, 1997).

The traditional HRM style was focused on supportive personnel activities for a company including collecting employee information, monitoring individual performance and implementing organization policies. The new role of HR manager should understand the business strategy and formulate the corresponding management strategy on human resources to improve delivered service, and act as a strategy partner with top management team (Beer, 1997; Mohrman & Lawer, 1997). According to Manpreet, Loverdeep, Shiny, & Shivani, 2014(Manpreet *et al.* 2014; Kaur *et al.* 2014; Alami *et al.* 2016):

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Peer review under responsibility of Bussecon International Academy.

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<https://doi.org/10.20525/ijrbs.v9i1.606>

“Technology and HRM have a wide range of impact upon each other and therefore human resource professional should be eligible to adopt technologies that allow the re-engineering of the HR action, be prepared to maintain organizationally and work project changes caused by technology, and be able to maintain a proper managerial climate for innovative and knowledge-based organizations”

Also, the reorganization of departments in an organization will increase effectiveness in service delivery as well as decision-making procedures at the subordinate level. Reorganization (Bahtijarević-Šiber, Sikavica, 2001; Alami *et al.* 2016) is a process of implementing big changes in the organizational structure that often include reducing the number of management levels and changing organizational components by relocating and outsourcing some activities or functions, and very often also by reducing the number of employees.

Organization of this paper begins with introduction part. The second session is the literature review on the studies of the roles of emerging information technologies having impact on human resources. This study continues with a research and methodology session. In the last session, it concludes that the use of new information technology improves the efficiency of HR and enhances the performance of the enterprise.

Literature review

Role of Information Technology on Human Resources

According to Kumar *et. al* (1999) technology consists of two primary components: a physical component which comprises of items such as products, tooling, equipment's, blueprints, techniques, and processes; and the informational component which consists of know-how in management, marketing, production, quality control, reliability, skilled labor and functional areas. Implementation of information systems in a company increases performance as well as managers assisting in dealing with daily challenges of different nature.

Information technology means the system of origination and collection of information using society and organization. IT made it flexible to reach to information from anywhere by making computer programs cheaper, easier and smaller.

Information Technology is spreading throughout every sector of the economy and has implications for almost every enterprise (Helfen and Krüger, 2002; Rohilla, J., 2017; Alami *et al.* 2016). The organization uses all types of technology for human resources management for hiring and selecting an individual for an interview, managing employee, storing their data and to analysis it (Hendrickson, 2003; Rohilla, J., 2017). As mention by Ghorbani and Sangani (2011; Rohilla, J., 2017; Alami *et al.* 2016) IT is very impressive in organizational learning, effective communication with the employees, for the impressive organizational learning process and of the availability of information anytime and anywhere as manager required this to use their skills and abilities in organization and for timely decrease their weakness and other aspects.

Information technology has changed human resources role in the organization. Information Technology (IT) in HR function has created a new way of HR processes applications(Rohilla, J., 2017; Alami *et al.* 2016) .

Application of the IT in HR processes includes virtual recruitment, E-learning, and self-services HR (Gardner, Lepak, and Bartol, 2003). Virtual recruitment is web-based recruitment and it includes- virtual interview, online psychological test, resume searching and online job declaration that have changed the recruitment process and it is the fastest recruitment process. According Hendrickson (2003) these applications also removed the potential obstacles to reach to the pool of candidate. Before the internet, HR recruiters had to rely on print publications like as-newspaper; magazine but Information technology has made recruitment process more effective and efficient. (Selvan V, 2015). Information technology brings various improvements to an organization like- reduce administrative expenses, increase productivity, improve the decision-making process and customer service (Kaur *et al*, 2014; Rohilla, J., 2017).

In information technology process, information is always produced, distributed, processed and managed, so information technology will be the solution of problems when the training of employees and human capabilities are combined and thus develop and enhance productivity (Saber and Khademi, 2015; Alami *et al.* 2016).

Technology makes the human resource work simple and easier. HR manager now stores and retrieve the company's files in an electronic format (Selvan V, 2015; Rohilla, J., 2017).

Armstrong (2002) cited that information systems in HR can provide better services to line managers, serve as a pipeline connecting a personal policy and personal processes in all organization and thus facilitate personal management in the company, provide important data for a strategic personal decision-making and enable a quick acquiring and analysis of information for HR assistants, reduce cost labors at performance of personal activities.

Role of the reorganization processes

Reorganization is a process of making a major change to the organizational structure that often involves reducing management levels and possibly changing the components of the organization through removal or acquisition, as well as reducing the size of the workforce.

Khandwalla (1977) defines the reorganization of systematic change which is not "progressive, ad hoc, or partial ... nor a simple organizational scheme change ... is a major overhaul of culture, vision, values, strategy, management styles, technologies and staffing skills (Kahn and Sherer 1990).

In implementing change, modern managers cannot avoid the need to use the reorganization strategy as an attempt to provide a strategic alternative to the organization in resolving operational and financial issues. The reorganization of departments will increase effectiveness in service delivery as well as decision-making procedures at the subordinate level.

The basic objective of the organization is to maintain an adequate level of resources within a structure that will increase the proactive and reactive capacity of the organization to new requirements. The reorganization process, therefore, can lead to a reduction or increase in staffing levels. In both cases, the outcome will drive the organization and reorganization of workflows.

Lines of responsibility and authority need to be structured to facilitate the productive and effective use of resources Baldin (2007).

One of the most crucial factors to consider after reorganization is the effect on employees who remaining in the organization (survivors). Several studies of "survivors" reactions have provided evidence of the potentially negative consequences of the reorganization. Studies have suggested that survivors suffer from high levels of separation, stress, confusion and guilt. For example, Cascio (2003) found that more than half of survivor's report increased work stress and burnout symptoms after reduction. When the work that should be done is not reduced but reallocated to the remaining employees.

Confidence and morale are negatively affected as workloads increase and job insecurity increases (Fisher and White 2007).

On the other hand, there are some studies showing positive reactions to reorganization and reduction. For example, studies have shown that some survivors do not experience emotional distress; On the contrary, they are full of energy and consider reducing them as an opportunity for personal growth.

In addition, survivors value their ability to handle change. Empowerment and job reorganization have a powerful impact on 'survivors' assessment of their ability to cope. With more empowerment, survivors will experience a greater sense of personal control and will not feel so powerless in the face of change. Likewise, if work is redesigned to minimize overload or maximize work autonomy, survivors are more likely to respond positively. Barley (1986:78-108) suggested that the work environment, which he described as context, plays an important role in influencing 'survivors' response and subsequent performance.

Research & Methodology

To study the model of human resources management information technology used by private enterprises in Ferizaj, Kosovo, and to complete this analysis we designed the questionnaire. This questionnaire was addressed to employees of private manufacturing sector.

Questionnaires were distributed in person by interviewing employees of each enterprise.

The questionnaires examined variables such as the technology they use, how effective they are at work, the existence of human resources strategies, the reorganization process, and so on.

The sample was randomly selected from the register of private enterprises in the Municipality of Ferizaj. In this way, the simple random sample was used to select respondents from these enterprises and as a result this sample of 20 employees was selected and studied to represent the entire population.

All the research papers and research issues identified and elaborated on the presentation of the results and their discussion are oriented and derived from these hypotheses:

H0: IT has effect on improving the efficiency of HR

H1: IT has no effect on improving the efficiency of HR

H0: Reorganization has the effect of removing monotony in routine HR tasks

H1: Reorganization has no effect on avoiding monotony in routine HR tasks

H0: IT has an impact on worker socialization

H1: IT has no impact on worker socialization

Empirical Findings

Analyzing data and discussing results

The data has been collected from the respondents, were processed and analyzed using the frequency table. This helped to collect the data in the tables using a descriptive statistic as a percentage.

The results are presented in table as below:

Table 1: The use of new technologies from the enterprises and their impact in efficiency of HR

	Above average	Average	Under Average	None
1. How much are new information technologies being used in your company?	60%	30%	10%	0
2. How much has technology impacted your efficiency?	75%	15%	10%	0%
3. How efficient are you at work	65%	20%	10%	5%

Source: authors

The table shows that most employees state that they use new technologies in their work, while 10% respond that they use it little.

While most employees state that the use of information technology influences the performance enhancement of their work, 10% respond that IT has little impact on their performance. Also, most employees state that they are efficient at work, while 10% say they have little knowledge, 5% respond that they are not at all ineffective.

Table 2: Using the reorganization process and impacting the efficiency of RH

	Yes	Average	No
1. Is your job reorganized at your enterprise	70%	20%	10%
2. Does reorganization affect your efficiency at work?	60%	30%	10%
3. Does the reorganization help to excess monotony in routine tasks	90%	5%	5%

Source: authors

The table shows that most employees indicate that their enterprise is being reorganized, while 10% respond that no reorganization is done.

The reorganization process has had an impact on increasing work efficiency, with most employees reporting that, only 10% responded that there was no reorganization impact on RH efficacy.

Regarding the extent to which reorganization has helped them overcome monotony in routine tasks, 90% of them responded with yes, while about 5% of them denied removing monotony in work tasks by the reorganization process.

Table 3: The Impact of new technologies on employee socialization.

	Yes	No	Average
1. How socialized are you with the other co-workers in the enterprise?	30%	50%	20%
2. How much information technology has the effect of losing socialization?	90%	0%	10%
3. Does your enterprise create opportunities for socialization such as travel, training, etc.?	30%	60%	10%

Source: authors

The table shows that around 30% of employees responded that they were socialized in their work, 50% responded no and 20% on average.

While regarding the question of how information technology affects socialization loss, about 90% of the answers are that they affect and 20% are the answers that affect them on average.

Most employees responded that the enterprise does not create opportunities for socialization, and only 30% responded yes.

Table 4: Technology, reorganization in employee motivation

	Declaration	Strongly disagree	I don't agree	Indifferent	Agree	Strongly agree
10	The department of HR does not play an important role in my enterprise?	0 %	20 %	0 %	75 %	5 %
11	IT has made that High level of management to lose their trust in their employees.	0 %	10%	0 %	60 %	30 %
12	IT is essential for my enterprise.	25 %	65 %	0 %	10 %	0 %
13	The management is interested to motivate us.	0 %	20%	30 %	40 %	10 %
14	Reorganization motivate employees.	0 %	5 %	10 %	70 %	15 %
15	Employees feel comfortable engaging in strategic issues of the enterprise.	0 %	0 %	0 %	70 %	30 %
16	I'm happy with the technology being used.	40 %	20 %	10 %	30 %	0 %
17	The enterprise supports development for learning of new skills.	0 %	5 %	0 %	50 %	45 %
18	IT eliminates a lot of routine work	5 %	10 %	5 %	60 %	20 %
19	The reorganization has the effect of improving performance.	0 %	20 %	5 %	75%	0 %
20	IT affects the reorganization process	0 %	15 %	5 %	55 %	25 %

Source: authors

The table above shows that most respondents agree that the HR department plays an important role in their enterprises, with only 20% of employees that disagree.

IT has lost the trust of high levels of employees, respondents have stated that they strongly agree 30%, 60% agree and 10% strongly disagree.

In the question, the IT is essential in my enterprise most of the respondents disagreed, and only 10% of them agreed. While the question management motivates us at work, they answered 10% strongly agree, 40% agree, 30% are indifferent and 10% disagree.

In the question, reorganization motivates employees, 5% of respondents disagree, 10% are indifferent, 70% agree and 15% strongly agree.

All respondents stated that they feel comfortable being involved in strategic issues of the enterprise.

Asked if they are dissatisfied with the technology used by the enterprise, 40% of respondents strongly disagree, 20% disagree, 10% are indifferent and 30% say they strongly agree. 45% of respondents stated that they strongly agree that the company supports the development of new skills learning, 50% of them agree and 5% have statements that they do not agree.

Most respondents answered that IT eliminates a lot of routine work, while 5% strongly disagree.

75% of respondents stated that reorganization has an effect on performance improvement, 5% of them are indifferent and 20% of them disagree. The majority of respondents say that IT influences the process of reorganization, while 15% disagree with this statement.

Discussions

In order to achieve the purpose designed for this paper, the following research hypotheses were formulated based on findings in the literature review related to improving the efficiency of human resources using new technologies and the reorganization process. The hypotheses are as follows:

H1: TI has effect on improving the efficiency of HR

H2: IT has no effect on improving the efficiency of HR

Pearson correlation was used for findings on the relationship between technology and improvement of HR efficiency.

Technology is the independent variable, while efficiency is a dependent variable. Technology's perception of the impact of technology on HR efficiency in Table 1, respectively, in Question 2 and their perceptions of effectiveness were positive (Table 1, Question 3). The findings are summarized in the table below. The Pearson correlation includes the coefficient given in the following formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2 \quad n \sum y^2 - (\sum y)^2}}$$

Where, r – Pearson Correlation coefficient, n - Frequency.

Table 4: Analysis of the relationship between technology and efficiency

Scale	Technology(x)	Efficiency (y)	Xy	x ²	y ²
Above average	15	13	195	225	169
Average	3	4	12	9	16
Under average	2	2	4	4	4
None	0	1	0	0	1
	Σ(x) =20	Σ(y) =20	Σ(xy)=211	Σ(x ²)=238	Σ(y ²)=190

Source: Authors

$$r = \frac{n \Sigma xy - \Sigma x \Sigma y}{\sqrt{n \Sigma x^2 - (\Sigma x)^2} \sqrt{n \Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{4 \times 211 - 400}{\sqrt{[4(238) - (20)^2]} \sqrt{[4(190) - (20)^2]}}$$

$$\frac{444}{\sqrt{198720}} = 0.99\%$$

The correlation coefficient $r = 0.99$ means that there is a very strong positive relationship between technology and HR efficiency.

Hypothesis 2:

H0: Reorganization has the effect of removing monotony in routine HR tasks

H1: Reorganization has no effect on avoiding monotony in routine HR tasks

Where, r – Pearson Correlation coefficient, n - Frequency.

Table 5: An analysis of the relationship between the process of reorganization and the elimination of monotony at work.

Scale	Reorganization(x)	Monotony at work (y)	Xy	x ²	y ²
Yes	12	18	216	144	324
Average	6	1	6	36	1
No	2	1	2	4	1
	Σ(x) =20	Σ(y) =20	Σ(xy)=224	Σ(x ²)=184	Σ(y ²)=326

Source: authors

$$r = \frac{n \Sigma xy - \Sigma x \Sigma y}{\sqrt{n \Sigma x^2 - (\Sigma x)^2} \sqrt{n \Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{3 \times 224 - 510}{\sqrt{[3(184) - (20)^2]} \sqrt{[3(326) - (20)^2]}}$$

$$r = \frac{162}{\sqrt{87856}} = 0.5\%$$

The correlation coefficient $r = 0.5$ means that there is a strong positive relationship between reorganization and avoidance of HR work.

Hypothesis 3:

H0: IT has an impact on worker socialization

H1: IT has no impact on worker socialization

Table 6: An analysis of the relationship between technology and its impact on socialization.

Scale	Technology(x)	Socialization(y)	Xy	x ²	y ²
Yes	18	6	180	324	36
Average	0	10	0	0	100
No	2	4	8	4	16
	Σ(x)=20	Σ(y)=20	Σ(xy)=188	Σ(x ²)=328	Σ(y ²)=152

Source: Authors

$$r = \frac{n \Sigma xy - \Sigma x \Sigma y}{\sqrt{n \Sigma x^2 - (\Sigma x)^2} \sqrt{n \Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{3 \times 188 - 400}{\sqrt{[3(328) - (20)^2]} \sqrt{[3(152) - (20)^2]}}$$

$$r = \frac{164}{\sqrt{32704}} = 0.9\%$$

The correlation coefficient $r = 0.9$ means that there is a very strong positive relationship between technology and non-socialization at work in HR.

Conclusions

Information technology is expected to improve the performance of Human Resource Management by shifting its focus from administration or personnel management to strategic HRM. The rapid technology changes also ask for HR professionals to get new skills through education, or sourcing HR Professionals who have IT ability.

Beside IT is an important instrument for realizations of HR functions, widely use of IT in the HR functions affects HR management in many aspects. Use of IT within the HR functions increases effectiveness and efficiency of HR practices, decreases time and costs. Moreover, IT facilitates distributions of information along the organizational hierarchy, it empowers organizational decision making and knowledge management. Also, self-service HR, e-learning and e-recruiting are possible only with IT tools. These new processes regarding effectiveness, efficiency and cost create more value than traditional HR processes do for the organization.

The aim of this paper was to present how information technology forces human resource function to be improved and how it changes management in an enterprise. Also, this paper brings information how the technology brings opportunities for all members to facilitate work, measure activities, provide instant feedback and reduce waste of time. It also clearly shows what reorganization represents for an organization. Given that reorganization is a process that requires a great deal of change management, as well as the effects that gives such a process on the employees of the organization. The results of empirical research showed that there is a very strong positive relationship between technology and increased work efficiency in HR. 75% of employee's state that the use of information technology affects the efficiency of their work. A strong positive relationship was also found between reorganization and avoidance of monotony at work, with 90% of employees answering yes.

We also found from the research that there is also a very strong positive relationship between technology and its impact on non-socialization. When asked how much information technology affects socialization loss, about 90% of employees stated that it affects them and only 20% of them answered that it affects them moderately.

Finally, new technologies provide the opportunity for HR to perform a more valuable function for an organization. The impact of information technology is not only within the HR department, but at every level that participates in HRM activities. As a result, applications of IT in the HR functions both affect HR practices and make HR professionals develop new competencies.

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