

# Comparing Electronic Human Resource Management System's Efficiency In Production Organization & Service Organizations

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**Abstract:** Today the organizations used information technology in performing human resource department affairs and this is called as electronic human resource management (EHRM). In fact as the competitive complexity increases, the need for implementing EHRM in production and service businesses increases too. This paper is written in order to specify the importance of implementing EHRM in production and service organizations and also to evaluate efficiency rate and the importance degree in these two ones. In this paper first the topic's literature and the most important aspects of implementing these systems will be reviewed and after categorizing these views, the hierarchal model will be proposed by applying AHP method. The result of analyzing this model by EXPERT CHOICE software shows that implementing EHRM in both kinds of organizations has the same importance; however there is a large difference between them in implementing aspects.

**Index Terms:** EHRM, internet and technology, service organizations, production organizations

## 1 INTRODUCTION

Today human resources are considered as competitive advantage in competitive markets, therefore traditional human resource management systems can't be used for preparing dynamic and intelligent workforce and also the way which people manage can provide organization's future competitive advantage. One of the most important accomplishments of new millennium is certainly internet and information technology. Information technology has evolved management sciences especially human resource management and this evolution has created new concept known as electronic human resource management. In fact by implementing EHRM systems the bureaucratic and administrative processes have eliminated and the organization can compete with other organizations in a higher levels. Therefore, human resource management can reduce organization's costs more effectively by applying information technology and enhance customer's attraction skill by concentrating on special competitive strategies. EHRM has affected all human resource management fields such as recruitment, development, remuneration and benefits, safety and employee relations and by modifying different processes the situation is provided for new activities to be performed by human resource department. In fact human resource department should be considered more important than other departments in organizations and that's because of its strategic role in performing processes. HRM needs information technology because of three reasons as shown in picture 1.

1. Information technology can accelerate the processes and activities
2. It can manage complex HRM affairs
3. Its ability in evaluating and sharing information.

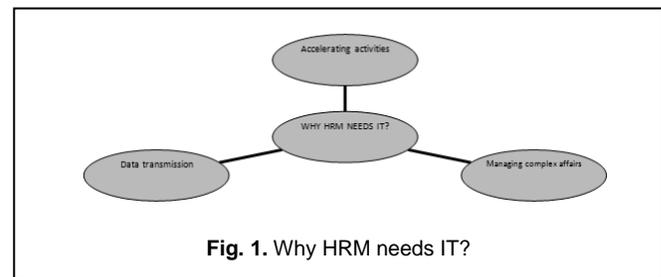


Fig. 1. Why HRM needs IT?

Therefore, quick evolutions and noticeable advancements in information technology have created the situation for organizations and companies especially in advanced countries in a way that if they don't implement EHRM, they can't succeed and this shows the importance of EHRM. In this paper the literature and research background will be reviewed in section 2. The applied methodology and the importance of AHP technique will be discussed in section 3. The results of research investigation will be illustrated in section 4 and finally the results of implementing EHRM systems in production and service organizations will be discussed in section 5.

## 2 LITERATURE REVIEW

### 2.1 HUMAN RESOURCE MANAGEMENT

As globalization increases, managing organization's human resources is getting more challenging, unpredictable and more uncertain. Therefore, HRM is considered as a quick approach for conforming internal and external activities at universal and international level. HRM science has formed in 1970s. This science deals with managing the most strategic assets of an organization (human) that holds all people who works in an organization and it consumes a lot of time [11]. In fact HRM is strategic managing of the most valuable assets of an organization which help it to reach its goals [1]. HRM paves the way for organization's success by creating a meaningful relationship among scarce sources, management capabilities and human resource abilities. Besides that HRM backed organizations in attracting skillful and motivated staff and designing work systems with high performance [1].

### Information technology:

Sleezer and et al. (2002) defined information technology as an umbrella which surrounds large amounts of software,

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hardware and applied services for gathering, storing, retrieving and sharing data [4]. Information technology has caused great changes in organizations by special capabilities. The most important capabilities of information technology are: 1) Reducing management costs 2) Increasing productivity 3) Reducing responsiveness time 4) Improving decision making process 5) Improving customers servicing [2]

## 2.2 HRM & EHRM

Human resource management is evolved like other sciences by applying information technology and its capabilities and this created new concept which named EHRM. EHRM concept is introduced in 1990[7,8], which considers all HRM activities that are done by intranet and internet [3]. Henson (2005) considers EHRM as a combination of workforce and technology and believes that workforce and technology are like heartbeat and sets of business tools and as HRM is the most important department of each organization for managing and developing workforce, information technology is empowering HRM to reach these goals [5]. There is a relatively comprehensive definition which is proposed by Strohmeier. EHRM is planning, implementing and applying information technology for connecting at least two people or two groups of people in order to perform collective activities of HR department [6]. By applying EHRM system we can outsource HRM activities because the outsourcing operation can increase efficiency level of HR department [12]. EHRM systems are applied in different levels of organizations but the most thorough one consists of ERP, centers which present collective HRM services, audio responsive systems, managers and staff portals and also web based software therefore, an electronic HR permits staff to control personal information by updating records and decisions and managers can analyze staff behavior by accessing online information and data [3,10]. Lengnick-Hall (2003) and Panayatopulo (2007) believe that this technology has evolved in three stages of data transmission, automating processes and creating strategic value [9,10]. Ruel and et al. (2007) were searching for the method which HRM effectiveness can be promoted and they found that implementing EHRM can reduce costs, improving the proposed services and finally promote the strategic role of this department [13]. Voermans and et al. (2007) investigated the people's attitudes in implementing EHRM and they concluded that people's attitude can be affected by diverse and different factors and they specify two factors for improving this attitude.

1. The positive experiences in implementing information technology
2. The degree which people perceive from the role of HR department

Strohmeier 2007 believes that EHRM can create innovation and can develop HRM [6]. Li-Zhang and et al. (2007) investigated the problems which can be faced in developing EHRM systems in China. They believed EHRM evolution and emergence is caused by organizational intelligence and information technology emergence and finally they said that all organizations should consider all aspects of implementing EHRM system [15]. Bondarouk 2009 presents the results of all researches that are done in the field of EHRM [16]. Panayatopulo and et al. (2010) investigated the effects of EHRM environmental factors. The findings show that environmental, regional and several numbers of factors should

be considered in implementing EHRM [17]. Liang-Hung (2011) investigated the information technology and virtual organizational structure. The results show that implementing information technology can promote organizational innovation and staff creativity and all of these can create competitive advantage for organizations [18]. Parry (2011) believes that implementing EHRM increases HR department capabilities [19]. She also investigated the objectives and desired results of implementing EHRM in cooperation with Tyson (2011) and they believed that EHRM can increase efficiency improve servicing, standardizing activities, empowering employees and making HR department role in each organization more strategic [20]. Current study is done by applying these findings and tries to answer these questions:

1. What are the most important effects and factors in implementing EHRM systems?
2. Which kind of organization has higher priority in implementing EHRM system?
3. Which factors and effects of implementing EHRM systems have higher priority in each type of organization?

## 3 METHODOLOGY

Today, decision making in different fields is one of the most important challenge of management. Therefore, if the decisions don't make correctly they can make crisis, so it can be said that decision making has the highest importance in management science and some theoretician knows management as decision making. Decision making is done in different environments. In general view we have 3 categories of decision making environments.

1. Certain environment
2. Risky environment
3. Uncertain environment

In general, two approaches are also introduced for decision making processes.

1. Trial and error
2. Modeling approach

In modeling approach the decision maker and specialists try to model decisions, choices, different effective factors and the relations among them and after designing the model the analyst can use suitable technique such as statistical methods, optimization, simulation and heuristic methods to find the best option among all introduced ones. The analyzing decision models can be categorized into 3 categories:

1. Multi-criteria systems (Yoon 1995)
2. Decision support systems (Turban 1995)
3. Single objective systems (Howard 1984) [22,23]

To solve multi-criteria problems, the system and its elements should be recognized correctly and finally analyzed exactly. The approach which is used to solve these problems is MCDM technique that this decision process is performed in presence of diverse criteria [25]. According to research objectives the suitable technique to solve this problem and specifying the answers is AHP method. AHP is a tool which used expansively in multi-criteria decision making models and introduced by Saaty [24,14]. The base of AHP process is pair comparing. This approach facilitates the investigation of qualitative problems which don't have any measuring unit and can combine these problems with quantitative ones. This research is considered as applied one. By investigating different papers

which are done in EHRM field, We believed that we can categorized all impressive effects and factors which are important in implementing EHRM into 6 categories that all these 6 clusters are: 1) Personnel: these factors are related to the specifics of active personnel in organization. The most important ones are: employee attitude, personnel education level, the degree which employees are familiar with information technology skills, employee's motivation in achieving organizational objectives, and employee's cooperation in initializing these systems. 2) Information and communications: these factors are connected to information technology and its features and the most important ones are: the ability to provide comprehensive and applicable data for all users, better information update by employees, preventing gathering repetitive data, the possibility of outsourcing unimportant activities of HR department, better information transition between users and departments, accelerating the process of transforming data to information and information to knowledge. 3) Strategic: these effects and factors point to the aspects of EHRM implementation which can promote HR department strategically. The most important ones are: promoting decision making processes by cooperating employees in decision making process, providing updated data, aligning HR department strategy with organizational strategies and moving toward globalization. 4) Operational: all effects and factors which can change operational specifics in HR department. The most important ones are: cost reduction, the number of specialist's reduction, promoting and improving all activities of HR department, the capability of providing diverse reports. 5) Technologic: these factors are pointed to the technologic specifics in recent advancements and related aspects. The main ones are: the development of internet and information technology, the complexity of EHRM systems, the compatibility of these systems with technology and applied organization's system. 6) Organizational: these factors are connected to organizational specifics. The main ones are: organizational financial status, easy obtaining of organizational objectives, senior manager organization's support, organization's structure and size, the importance of HR. After recognizing these effects and factors, an AHP model is provided according to the importance of implementing these systems in production and science organizations. This model is shown in pic 2.

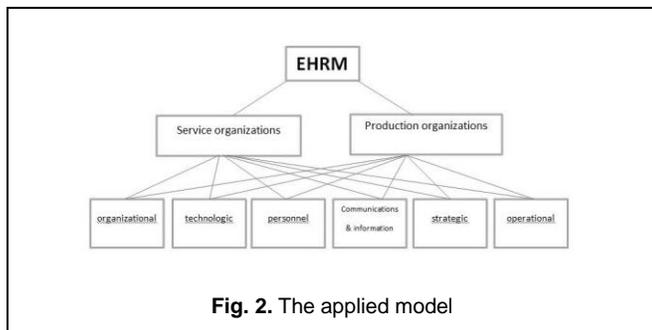


Fig. 2. The applied model

**4 ANALYSIS**

For providing the model and the needed data the questionnaire is designed. The questionnaire's reliability is investigated by Cronbach's Alpha approach and its reliability obtained 0.754. The questionnaire's validity is evaluated by consulting to specialists and finally after accessing to desired validity and reliability. The questionnaire distributed among

accidental sample. Finally after extracting and applying the needed data the AHP model is designed in EXPERT CHOICE software according to pic 3.

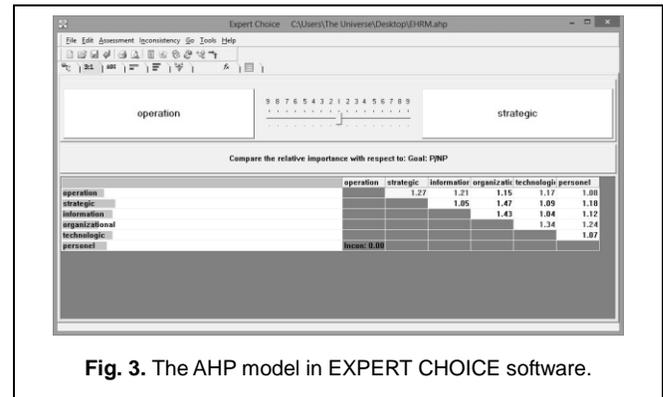


Fig. 3. The AHP model in EXPERT CHOICE software.

the results of performing EXPERT CHOICE software is shown in table (1).

TABLE 1. THE RESULTS OF PERFORMING THE MODEL

Production	service	Organization type
		Factors
0.379	0.621	Organizational
0.7	0.3	Strategic
0.66	0.34	Operational
0.237	0.763	Information and communication
0.62	0.38	Technologic
0.319	0.681	Personnel
0.495	0.505	Average

As specified, there are a lot of different factors which are effective in EHRM systems, that each of them has certain amount of importance. The results of running AHP model represent that implementing EHRM systems in both kinds of organization (production and service) has the same importance. On the other hand it should be mentioned that the importance of implementing EHRM in each kind of organization is different by considering each factor separately. For example information factors have the highest importance in service organizations compared with production ones. However, strategic factors have the highest importance in production organizations compared with service ones. Therefore, however initializing EHRM systems in both kinds of organizations have the same importance, Managers should consider all effective factors in establishing these systems and if the mentioned conditions in organization aren't suited for implementing these systems, then implementing of these systems should be done cautiously and if the situation is not prepared, it is proposed to managers to do a research and after identifying the deficiencies, they should try to remove them and after certifying about removing these deficiencies the EHRM implementation can be done in a secure way.

**4 CONCLUSION**

As mentioned, the development of information technology and its related infrastructure have evolved HRM and has created new concept as named EHRM. In fact, EHRM has formed by the synergy of IT and HRM. EHRM implementation can bring a lot of benefits to an organization however it should be

mentioned that implementing of these systems in each organization should be done cautiously and it is suggested to form a team and this team's purpose is to investigate organization's qualifications about implementing EHRM systems.

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