Proceeding Paper

Investigation and Prioritization of Manpower Activities and Strategic Human Resource Management Factors in Human Resource Information System †

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Abstract: Human Resource (HR) is one of the main departments in an organization that foresees all the manpower of a company. HR trends are changing rapidly. One such advancement in the field of HR is the human resource information system (HRIS). This paper aims to investigate and prioritize the factors of manpower activities and strategic HRM in HRIS. For this purpose, analytic hierarchy process (AHP) has been used. The result showed that HRs use HRIS for basic purposes such as training, hiring, and forming HR policies. This paper provides an insight into the investigation of the most important factors while implementing HRIS in an organization.

Keywords: human resource information system; manpower activities; strategic human resource management; analytic hierarchy process

1. Introduction

Technology is evolving rapidly with time. So, businesses and other organizations must adapt to new trends to stay in the competition. Technology helps businesses in managing and retrieving their database, keeping records, increasing office productivity, and much more [1]. Mid- to high-level companies use the human resource information system (HRIS) to achieve all these goals with just a few clicks. Some research regarding the impacts of HRIS on human resources has already been conducted. Hendrickson [2] has defined HRIS as an integrated system that helps the organization gather, store, analyze and process information regarding its human resource. Mark Feffer [3] recognized human resource information system as a trend that will only grow.

It is new terminology, and many are unaware of it, especially in Pakistan. This paper helps to identify and investigate what Pakistani engineering firms use HRIS for and how they prioritize the manpower activities and strategic HRM factors in HRIS. These preferences have been obtained using the multicriteria decision-making (MCDM) technique called analytic hierarchy process (AHP).

2. Literature Review

Human resource information system has a vast impact on various aspects of an organization from hiring to career management to strategic human resource management. Researchers have been finding ways to define HRIS and its impacts on organizations. Lippert and Swiercz [4] focused on the user's trust in the technology. The greater the trust, the easier it will be to deploy the HRIS. Obeidat [5] talked about HRIS and its relationship with human resource functionalities. He described HRIS as a system that is comprised of strategic tools and planners that improve the future forecast of the supply and demand of the workforce and enhance workers' performances.

Regarding HRIS and manpower activities, Fernandez [6] studied the impact of human resource information system on the recruitment of new employees. With the increase in competition, it is very important for companies to hire better people for the job and to ease the pain of hiring and recruiting. Khera and Gulati [7] did not limit her study to recruitment like Fernandez. She tried to observe the impact of the HRIS on other human resources activities such as training, HR planning, etc. The results after data analysis showed that HRIS has many benefits but one of the best benefits is its capability of storing and analyzing employees' data.

HRIS has been changing the face of traditional HRM and is converting it into more of an advanced HRM with the use of technology; it is known as strategic human resource management (SHRM). Nagendra and Deshpande [8] focused on the strategic side of human resource management. According to this study, aligning IT with HR strategies would help the organization improve its HR tasks. Cheema [9] focused on the decision-making side of the SHRM System.

Vargas [10] explained the analytic hierarchy process (AHP) and its applications in different fields. This study described the two processes that are involved in AHP. The first process includes hierarchic design of pairwise comparisons and the second process deals with evaluation of that comparison. Esangbedo et al. [11] mostly focused on the use of multi criteria decision making techniques in human resource information system.

3. Research Methodology

This study aims to investigate and find the preferences of factors regarding manpower activities and SHRM in HRIS. For this purpose, AHP was used. The first step was to identify all the significant factors in manpower activities (hiring, training, job satisfaction, promotion/demotion, wages, incentives, employees' health, employees safety, communication, staffing, and leaves) and SHRM (career management, demand/supply, HR policies, employee's rights and policies, HR development, job analysis, work–study method, ratio trend analysis, risk management, decision making, business process re-engineering (BPR), workplace learning, HR planning, e-learning, globalization, and offshoring). The next step was to make questionnaires (for manpower activities and SHRM) that would help to assign weights in a pairwise comparison. The weights were assigned using a preference table. The questionnaire was filled out by HR experts. After obtaining the response, the third step was to put in all the weights of all the factors and to find the prioritized factors using AHP (by using expert choice). At first, manpower activities factors were put into the software. Weights were assigned to the factors and the results were obtained. After that, the same steps were followed for SHRM factors.

4. Results and Findings

After putting the weights for manpower activities in expert choice, the comparison matrix obtained is shown in Figure 1.

	Hiring	Training	Job Satisfa	Promotion/	Wages	Incentives	Employee	Employee'	Communic	Staffing	Leaves
Hiring		4.0	1.0	5.0	2.0	4.0	2.0	6.0	1.0	5.0	3.0
Training			3.0	1.0	2.0	3.0	2.0	3.0	2.0	2.0	1.0
Job Satisfaction				2.0	3.0	2.0	1.0	4.0	4.0	3.0	2.0
Promotion/Demotion					4.0	3.0	2.0	2.0	1.0	3.0	1.0
Wages						1.0	2.0	2.0	3.0	1.0	1.0
Incentives							1.0	2.0	3.0	2.0	2.0
Employee Health								2.0	4.0	5.0	2.0
Employee's Safety									3.0	2.0	2.0
Communication										3.0	2.0
Staffing											2.0
Leaves	Incon: 0.08										

Compare the relative importance with respect to: Goal: To Find which manpower factors expert prefer for HRIS

Figure 1. Pairwise comparison matrix obtained from the software "Expert Choice" for manpower activities.

From Figure 2, it can be seen that for manpower activities, the preferred factors include hiring (0.208), and communication (0.166), while staffing showed the lowest value of 0.032.
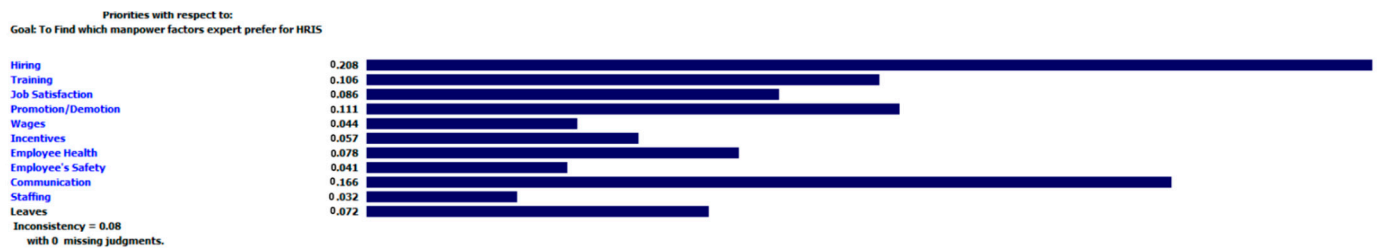
Priorities with respect to:
Goal: To Find which manpower factors expert prefer for HRIS

Factor	Priority
Hiring	0.208
Training	0.106
Job Satisfaction	0.086
Promotion/Demotion	0.111
Wages	0.044
Incentives	0.057
Employee Health	0.078
Employee's Safety	0.041
Communication	0.166
Staffing	0.032
Leaves	0.072

Inconsistency = 0.08
with 0 missing judgments.

Figure 2. Preference table for manpower activities using expert choice.

The next step was to put in the alternatives for SHRM and assign weights to them using the software. The pairwise comparison matrix for SHRM is shown in Figure 3.

Compare the relative importance with respect to: Goal: To find which SHRM factors expert prefer for HRIS

	Career Mai	Demand ar	HR Policie:	Employee'	HR Develo	Job Analys	Work-Stud	Ratio Tren	Risk Mana	Decision M	BPR	Workplace	HR Plannir	E-learning	Globalizati	Offshoring
Career Management		1.0	1.0	1.0	1.0	4.0	4.0	1.0	1.0	1.0	6.0	5.0	5.0	1.0	1.0	
Demand and Supply			3.0	3.0	1.0	2.0	1.0	1.0	3.0	1.0	3.0	1.0	1.0	1.0	1.0	
HR Policies				5.0	3.0	5.0	1.0	3.0	3.0	1.0	1.0	3.0	2.0	5.0	4.0	
Employee's rights and policies					1.0	5.0	3.0	6.0	4.0	5.0	4.0	7.0	5.0	3.0	2.0	3.0
HR Development						3.0	2.0	4.0	3.0	2.0	4.0	4.0	2.0	5.0	1.0	3.0
Job Analysis							3.0	4.0	5.0	4.0	3.0	4.0	5.0	3.0	1.0	1.0
Work-Study Method								1.0	1.0	1.0	1.0	1.0	4.0	2.0	2.0	1.0
Ratio Trend Analysis									2.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0
Risk Management										1.0	1.0	1.0	6.0	3.0	2.0	1.0
Decision Making											2.0	2.0	4.0	3.0	1.0	1.0
BPR												1.0	1.0	1.0	1.0	1.0
Workplace Learning													1.0	1.0	1.0	4.0
HR Planning														4.0	5.0	5.0
E-learning															4.0	1.0
Globalization																1.0
Offshoring																

Figure 3. Pairwise comparison matrix obtained from the software "Expert Choice" for SHRM.

For SHRM, the results after assigning the weights to all the factors showed the following priority: HR policies, job analysis, HR development, career management, HR planning, employees, rights and policies, decision making, and so on. This order shows that for SHRM, HRs prefer HRIS for forming and managing HR policies (0.120), keeping a record of employees and job analysis (0.110), developing HR department (0.10), and employees' career management (0.094). Further results are presented in Figure 4.
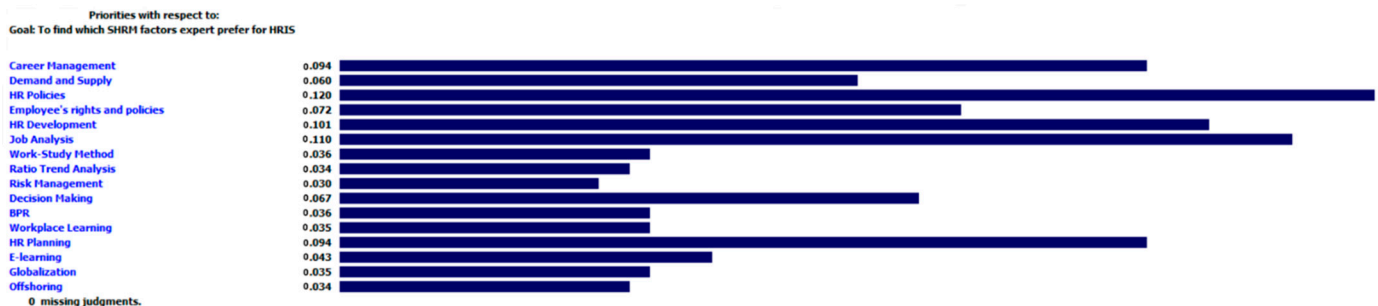
Priorities with respect to:
Goal: To find which SHRM factors expert prefer for HRIS

Factor	Priority
Career Management	0.094
Demand and Supply	0.060
HR Policies	0.120
Employee's rights and policies	0.072
HR Development	0.101
Job Analysis	0.110
Work-Study Method	0.036
Ratio Trend Analysis	0.034
Risk Management	0.030
Decision Making	0.067
BPR	0.036
Workplace Learning	0.035
HR Planning	0.094
E-learning	0.043
Globalization	0.035
Offshoring	0.034

0 missing judgments.

Figure 4. Preference table for SHRM using expert choice.

5. Conclusions

The main purpose of this study was to identify the priorities of human resource regarding manpower activities and strategic human resource information system while using HRIS. In this research work, analytical hierarchy process was used to prioritize the factors.

Hiring, training, promotion/demotion, HR development, policy making, and job analysis were found the most important factors while studying the manpower activities and strategic human resource management. The major limitation of this study includes the use of traditional (outdated) HR systems in engineering firms. Most of the HR experts were found unaware of the use HRIS and its working which opens the way for HR researchers to investigate this limitation in future.

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