

## **THE IMPORTANCE OF USING HUMAN RESOURCES INFORMATION SYSTEMS (HRIS) AND A RESEARCH ON DETERMINING THE SUCCESS OF HRIS**

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### **Abstract:**

With the increasing effect of globalization and technology, organizations have started to use information systems in various functions and departments in the last decades. Human resources management is one of the departments that mostly use management information systems. HR information systems support activities such as identifying potential employees, maintaining complete records on existing employees and creating programs to develop employees' talents' and skills. HR systems help senior management to identify the manpower requirements in order to meet the organization's long term business plans and strategic goals. Middle management uses human resources systems to monitor and analyze the recruitment, allocation and compensation of employees. Operational management uses HR systems to track the recruitment and placement of the employees. HRIS can also support various HR practices such as workforce planning, staffing, compensation programs, salary forecasts, pay budgets and labour/employee relations. In this research, HRIS perception and HRIS satisfaction questionnaires were applied to HR employees in order to assess the effectiveness and use of HRIS in organizations. 78 questionnaires were received from HR employees working in different sectors. The results of the research give valuable insights about the success and effectiveness of HRIS in organizations. Also the results of the study are discussed in the context of the theoretical and empirical background of MIS and HRIS.

*Keywords: management information systems, human resources information systems.*

## **1. INTRODUCTION**

Organizations must treat information as any other resource or asset. It must be organized, managed and disseminated effectively for the information to exhibit quality. Within an organization, information flows in four basic directions as upward, downward, horizontal and outward/inward (Haag & Cummings, 2008). Taking into account that there is a huge amount of information flow in organizations, it will be possible to understand the importance of information systems in organizations.

The information systems field is arguably one of the fastest changing and dynamic of all the business professions because information technologies are among the most important tools for achieving business firms' key objectives. Until the mid-1950s, firms managed all their information flow with paper records. During the past 60 years, more and more business information and the flow of information among key business actors in the environment has been computerized. Businesses invest in information systems as a way to cope with and manage their internal production functions and to cope with the demands of key actors in their environments. Firms invest in information systems for the business objectives such as achieving operational excellence (productivity, efficiency, agility), developing new products and services, attaining customer intimacy and service, improving decision making, achieving competitive advantage and ensuring survival (Laudon & Laudon, 2009).

## **2. MANAGEMENT INFORMATION SYSTEMS (MIS)**

It is important to coordinate and control major functions, departments and the business processes in an organization. Each of these functional departments has its own goals and processes and they obviously need to cooperate in order for the whole business to succeed. Firms achieve coordination by hiring managers whose responsibility is to ensure all the various parts of an organization work together. The hierarchy of management is composed of senior management which makes long term decisions, middle management which carries out programs and plans and operational management which is responsible for monitoring the daily activities of the business. Each of these groups has different needs for information given their different responsibilities (Laudon & Laudon, 2009). Management information system (MIS) is designed to assist managerial and professional workers by processing and disseminating vast amounts of information to managers' organization-wide (Alavi & Leidner, 1999).

Management information system supplies information for strategic, tactical and operational decision making to all subsystems within the organization. This information provides an essential part of the feedback control mechanism in these areas and is necessary for the realization of subsystem objectives (Curtis & Cobham, 2002). Management information system is any system that provides information for management activities carried out within an organization. The information is selected and presented in a form suitable for managerial decision making and for the planning and monitoring of the organization's activities.

## **3. HUMAN RESOURCES INFORMATION SYSTEMS (HRIS)**

Along with the upsurge of computerized management information systems (MIS) in industrialized countries' enterprises in the 1980s, HR functions increasingly started to deploy human resource information systems in their daily work. HRIS were primarily seen as MIS

sub functions within HR areas intended to support the “planning, administration, decision-making, and control activities of human resource management. During the 1990s, along with the adoption of more complex HR practices focused on a company’s overall performance goal, HRIS correspondingly evolved into more sophisticated information expert systems featuring analytical tools to support decision-making in managing human capital (Ostermann, Staudinger & Staudinger, 2009). Information technology in the past decade drastically changed the human resources function. Providing support for mainly administrative activities such as payroll and attendance management in the beginning, information technology today enhances many of the recruitment function’s sub processes such as long and short-term candidate attraction, the generation, pre-screening, and processing of applications or the contracting and on boarding of new hires. Online job advertisements on corporate web sites and internet job boards, online CV databases, different forms of electronic applications, applicant management systems, corporate skill databases, and IS supported workflows for the contracting phase are only few examples of the various ways by which information systems today support recruitment processes (Keim & Weitzel, 2009).

In HR planning process it is easier to follow workforce gaps, the quantity and quality of the labour force and to plan future workforce requirements with the help of HR knowledge systems (Dessler, 2005). HRIS can support long range planning with information for labour force planning and supply and demand forecast; staffing with information on equal employment, separations and applicant qualifications; and development with information on training programs, salary forecasts, pay budgets and labour/employee relations with information on contract negotiations and employee assistance needs (Shibly, 2011). Risk and security management is another crucial function which can be derived by HRIS by following private and highly sensitive individual data and multiplatform security aspects which are perhaps the most serious factors that need to be taken into consideration (Karakanian, 2000).

HRIS is defined as an “integrated system used to gather, store and analyze information regarding an organization’s human resources’ comprising of databases, computer applications, hardware and software necessary to collect, record, store, manage, deliver, present and manipulate data for human resources function” (Hendrickson, 2003). An HRIS can perform a number of functions from the simple storage and communication of information, to more complex transactions. As technology advances, the range of functions that an HRIS can undertake increases. Actually HRIS is directed towards the HR department itself (Ruël, Bondarouk & Looise, 2004), but the use of HRIS can provide a number of benefits not only to the HR function, but also line managers, and the wider organization (Parry, 2009). The use of HRIS has been advocated as an opportunity for human resource professionals to become strategic partners with top management. HRIS allow HR function to become more efficient and to provide better information for decision making (Beadles, Lowery & Johns, 2005).

The increased use of web technology to deliver HR will leave HR specialists more time for strategic decision making and that outsourcing of people-management activities will liberate HR specialists to perform more strategic activities (Kulik & Perry, 2008). According to Ulrich (2007; 2009) as one of the strategic partners, the HR manager derives benefit from IHRS, to disseminate and execute the strategy within the organization. These systems enable employees to manage much of their own HR administrative work. They can take care of many routine transactions whenever they wish, because automated systems don’t keep office hours. In addition to their former operational role, HR professionals can also act as a competency manager by arranging the right people to the right positions in the right time with their new

strategic architecture role (Gürol, Wolff & Ertemsir, 2010). HRIS is thought to contribute to overall business performance by fulfilling or at least supporting the tasks of data storage and retrieval, of serving as primary administrative support tools, of reporting and statistics as well as of program monitoring (Ostermann, Staudinger & Staudinger, 2009). HRIS plays an important role for any organisation to effectively manage its human assets. Many organizations have adopted HRIS to assist their daily human resources operations. HRIS must align and satisfy the needs of the organization and its users in order to be successful (Noor & Razali, 2011).

However, HR departments need to recognize some of the current limitations of web technology and its integration to the HRIS backbone. Similar to most e-business ventures, security of private HR information is a top priority. Organizations looking seriously into internet enabling of their HR businesses should evaluate the authentication, security, access rules, and audit trails related to service providers' networks, servers, and applications (Karakanian, 2000). On the other hand there can be undesired and unexpected consequences of HRIS. Undesired consequences refer, for instance, to an increase of quantity but a decrease of quality of applicants in e-recruiting (Strohmeier, 2009). Another important aspect of using information systems is user satisfaction. It is often suggested as an indicator of IS success. Many IS empirical researchers have regarded user satisfaction as important proxy of IS success and it is the most employed measure of IS success due to its applicability and ease of use. Within this literature, system and information characteristics have been core elements on user satisfaction which is defined as the attitude that a user has toward an information system (Shibly, 2011).

## **4. RESEARCH METHODOLOGY**

The purpose of the study is to determine the relationship between the satisfaction of employees from HRIS and their perceptions of HRIS. Another aim of the study is to reveal the perceptions of employees for the dimensions that constitute HRIS and explain the points that should be developed. Also, it is aimed to reveal that if the HRIS perceptions of employees show difference or not according to their demographic qualifications (age, gender, seniority, position, education). The research has importance to determine the contribution and success of using HRIS for HR employees.

With the results of the research, it is possible to give valuable insights about the importance of using HRIS and the satisfaction level of HR employees from this system. There is a lack of empirical study in the related literature. By considering the need of empirical studies in this field, it is obvious that both the theoretical and empirical results of this research will give an important contribution to the related literature.

### **4.1. Sample and Data Collection**

HR employees from different sectors participated to the research (n = 78) between January-March 2012. The method of the research sampling is “purposive sampling” which gives the researchers to use their own judgment to select suitable people for the sample (Balçı, 2004).

Two scales were used in the questionnaires as measurement instrument of the research. The first scale has 4 dimensions and 22 items that measure HRIS. The scale was translated to Turkish by the researchers and used as with 3 dimensions and 22 items in the research

according to face validity. Face validity is a judgment by scientific community that the indicator really measures the construct (Neuman, 2004).

The second scale has 3 items that measures HRIS satisfaction. The questions about social demographic qualifications such as gender, education, seniority, position and age were included to the items for measuring HRIS and the questionnaire form was developed. The questionnaires were sent to employees via e-mail and collected by the same way. Questionnaires were sent to HR employees who are working in different sectors such as pharmacy, fast-moving consumer and banking. 78 HR employees replied the questionnaires from these sectors.

#### **4.2. Data Analysis**

The items of HRIS perception and HRIS satisfaction scales were presented using a five-point Likert item as “1: strongly disagree” and “5: strongly agree”. Data was analyzed by SPSS for Windows 18.0 package program. Firstly, Kolmogorov-Smirnov test was used to determine the normality of data and the results showed that data was distributed normally and it is possible to make parametric tests.

Cronbach alpha reliability value was computed in order to find the reliability of the scale. The reliability values are 0.961 for HRIS perception scale and 0.829 for HRIS satisfaction scale. The reliability values of both scales are high for researches in social sciences (Kalaycı, 2005). Descriptive statistical analysis (arithmetic mean and standard deviation) and Pearson correlation test were used to determine the relationship between HRIS perception and HRIS satisfaction. Also, t-test and one-way ANOVA test were used to determine the differences according to demographic qualifications.

#### **4.3. Research Hypothesizes**

In this research, the relationship between the satisfaction of employees from HRIS and their perceptions of HRIS are analyzed, furthermore it is tested whether or not these two variables differ according to demographic variables such as position, gender, education level and age.

The main hypothesizes of the research are given below:

H<sub>1</sub>: There is a relationship between the satisfaction of employees from HRIS and their perceptions of HRIS.

H<sub>1a</sub>: Employees’ perceptions of HRIS show difference according to their position.

H<sub>1b</sub>: Satisfaction of employees from HRIS shows difference according to their position.

H<sub>1c</sub>: Employees’ perceptions of HRIS show difference according to their genders.

H<sub>1d</sub>: Satisfaction of employees from HRIS shows difference according to their genders.

H<sub>1e</sub>: Employees’ perceptions of HRIS show difference according to their education levels.

H<sub>1f</sub>: Satisfaction of employees from HRIS shows difference according to their education levels.

H<sub>1g</sub>: Employees’ perceptions of HRIS show difference according to their ages.

H<sub>1h</sub>: Satisfaction of employees from HRIS shows difference according to their ages.

#### **4.4. Findings and Results**

Employees from different sectors participated to the research (n =78). The social demographic qualifications of the participants are as follows: 25 male (32,1 %) and 53 female (67,9 %)

participated to the research. The educational background of the participants are; 9 people (11,5 %) have high school degree, 44 people (56,4 %) have undergraduate degree and 24 people (32,1 %) have graduate and Ph.D. degree.

The age classification of participants are; 8 people (10,3 %) are between 18–25; 49 people (62,8%) are between 26–33; 13 people (16,7 %) are between 34–41 and 8 people (10,3 %) are more than the age of 42. The seniority of participants are; 20 people (25,6 %) have less than 1 year seniority; 18 people (23,1 %) have 1–3 year seniority; 17 people (21,8 %) have 4–6 year seniority; 9 people (11,5 %) have 7–9 year seniority and 14 people (17,9 %) have seniority more than 10 years.

The positions of participants are; 34 people (43,6 %) HR manager and HR vice manager; 36 people (46,2 %) HR specialist and 6 people (7,7 %) HR assistant. 2 people did not give answer about their positions.

**Table 1:** Demographic qualifications of participants

Variable name		Frequency	(%)
<b>Gender</b>	Male	25	32,1
	Female	53	67,9
<b>Education</b>	High School Degree	9	11,5
	Undergraduate	44	56,4
	Graduate / Ph.D.	24	32,1
<b>Age</b>	18-25	8	10,3
	26-33	49	62,8
	34-41	13	16,7
	42 and more	8	10,3
<b>Seniority</b>	Less than 1	20	25,6
	1-3 year	18	23,1
	4-6 year	17	21,8
	7-9 year	9	11,5
	10 and more	14	17,9
<b>Position</b>	Manager/Vice Mngr.	34	43,6
	Specialist	36	46,2
	HR Assistant	6	7,7
	No answer	2	2,5

According to the results of descriptive statistical analysis (arithmetic mean and standard deviation) belong to two scales; the arithmetic mean for HRIS perception scale was computed as 3,73 (SD: 0.67) and the arithmetic mean for HRIS satisfaction scale was computed as 3,66 (SD: 0.78). These scores show that the participants gave answers to both scales as “agree”. According to the arithmetic mean of the dimensions of HRIS perception scale, we see that the three dimensions of the scale are evaluated close to each other and participants perceive HRIS activities almost with the same importance (Table 2).

When we look at the arithmetic mean of the dimensions of HRIS satisfaction scale, we see that it has been perceived almost same as HRIS (arithmetic mean: 3,66). Here we see that participants emphasize the importance of HRIS and at the same time they are satisfied with the HRIS system they use.

**Table 2:** Descriptive statistics results of the scales and their dimensions

Scales and Dimensions	Mean	Std. Dev.	N
System Quality	3,68	,69	78
Information Quality	3,76	,70	78
Perceived Ease of Use	3,73	,78	78
<b>HRIS (total)</b>	<b>3,73</b>	<b>,67</b>	<b>78</b>
<b>HRIS satisfaction (total)</b>	<b>3,66</b>	<b>,78</b>	<b>78</b>

*H<sub>1</sub>: There is a relationship between the satisfaction of employees from HRIS and their perceptions of HRIS.*

Pearson correlation analysis was used to test the relationship the satisfaction of employees from HRIS and their perceptions of HRIS. According to the results of Pearson correlation analysis, a positive and high level relationship was found with Pearson correlation value: 0,841 ( $p < 0.01$ ).  $H_1$  hypothesis is accepted.

In order to understand this positive relationship better, also the relationship between HRIS dimensions and satisfaction from HRIS were investigated as shown in Table 3. According to correlation analysis results, positive and high level relationship was found among all dimensions of HRIS and system quality, information quality and perceived ease of use.

**Table 3:** Correlation values of relationship between HRIS dimensions and satisfaction from HRIS

	System quality	Information quality	Perceived ease of use	HRIS satisfaction
System quality	1			
Information quality	,798** ,000	1		
Perceived ease of use	,770** ,000	,766** ,000	1	
HRIS satisfaction	,774** ,000	,792** ,000	,765** ,000	1

\*\*  $p < 0.01$

*H<sub>1a</sub>: Employees' perceptions of HRIS show difference according to their position.*

In order to determine whether employees' perceptions of HRIS show difference or not according to position variable, t test was used and statistically meaningful difference was found between these two variables ( $p: 0.008 < 0,05$ ).  $H_{1a}$  hypothesis is accepted.

Therefore we can say that the perception of employees working as a manager / vice manager, specialist or HR assistant show difference. The arithmetic means of answers were investigated in the direction of difference. According to the results (manager/vice manager 3,92, specialist 3.67, assistant 3.03), the HRIS perception of managers and specialists are statistically and significantly different from the perceptions of HR assistants.

**Table 4:** Results of one-way ANOVA analysis for HRIS

		Sum of Squares	df	Mean Square	F	Sig.
HRIS	Between Groups	4,376	2	2,188	5,189	,008
	Within Groups	30,781	73	,422		
	Total	35,157	75			

*H<sub>1b</sub>: Satisfaction of employees from HRIS shows difference according to their position.*

In order to determine whether or not employees' satisfaction from HRIS show difference according to their position, one-way ANOVA test was used and statistically meaningful difference was found between these two variables ( $p: 0.036 < 0,05$ ).  $H_{1b}$  hypothesis is accepted.

Therefore we can say that the satisfaction of employees working as a manager/vice manager, specialist or HR assistant show difference. The arithmetic means of answers were investigated in the direction of difference. According to the results (manager/vice manager 3,85, specialist 3.58, assistant 3.00), the HRIS satisfaction of managers and specialists are statistically and significantly different from the satisfaction of HR assistants. (Table 5).

**Table 5:** Results of one-way ANOVA analysis for HRIS satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
HRIS Satisfaction	Between Groups	4,091	2	2,045	3,489	,036
	Within Groups	42,792	73	,586		
	Total	46,883	75			

Also, t-test and one-way ANOVA test were used to determine whether or not perception of HRIS and satisfaction from HRIS show difference according to gender, education and age variables and no statistically meaningful difference was found between these variables. All analysis results of research hypothesizes are shown in Table 6.

**Table 6:** Results of research hypothesizes

Hypothesis	p-value	Result
H <sub>1</sub> : There is a relationship between the satisfaction of employees from HRIS and their perceptions of HRIS.	<b>0.000</b>	<b>Accepted</b>
H <sub>1a</sub> : Employees' perceptions of HRIS show difference according to their position.	<b>0.008</b>	<b>Accepted</b>
H <sub>1b</sub> : Satisfaction of employees from HRIS shows difference according to their position.	<b>0.036</b>	<b>Accepted</b>
H <sub>1c</sub> : Employees' perceptions of HRIS show difference according to their genders.	0.238	Rejected
H <sub>1d</sub> : Satisfaction of employees from HRIS shows difference according to their genders.	0.181	Rejected
H <sub>1e</sub> : Employees' perceptions of HRIS show difference according to their education levels.	0.606	Rejected
H <sub>1f</sub> : Satisfaction of employees from HRIS shows difference	0.632	Rejected



according to their education levels.

H <sub>1g</sub> : Employees' perceptions of HRIS show difference according to their ages.	0.146	Rejected
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H <sub>1h</sub> : Satisfaction of employees from HRIS shows difference according to their ages.	0.074	Rejected
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## 5. CONCLUSION

HRIS is an integrated system used to gather, store and analyze information regarding an organization's human resources' comprising of databases, computer applications, hardware and software necessary to collect, record, store, manage, deliver, present and manipulate data for human resources function. The use of HRIS in organizations has various advantages for managers especially in decision making processes. In this study, the HRIS perception and HRIS satisfaction of HR employees were investigated. According to correlation analysis results, positive and high level relationships were found among all dimensions of HRIS and system quality, information quality and perceived ease of use which jointly constitute HRIS success. Also, it is found those employees' perceptions of HRIS show difference according to their position and satisfaction of employees from HRIS shows difference according to their position.

The results of the research reveal that HR employees perceive HRIS useful and they are satisfied with the system. It was found that both HRIS perception and HRIS satisfaction of employees show difference according to position variable. This finding may have its source from the limited access of HRIS functions depending on the positions of employees. Thus future studies should also consider the relationships between the access limitations to information content and functions of HRIS and user satisfaction. Overall present research provides valuable insights into the study of HRIS success.

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