

Adoption of Human Resource Information System: An Exploratory Study of Bangladesh

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Abstract. Human resource information system (HRIS) is used to automate activities within the human resource department of any organization with the purposes of reducing cost and effort of storing and disseminating personnel information and make the entire process of personnel record keeping and decision making activities efficient and effective. This research explores 79 Bangladeshi organizations to conceptualize current practices of HRIS. The research findings verify wider extent of HRIS usage and its effectiveness in performing HR activities. It is also evident that HRIS is highly regarded by the top management and HR personnel within the organization.

Keywords: HRIS, HRIS valuation, HR automation, HRIS functions and modules.

1. Introduction

A Human Resource Information System (HRIS) is a computerized system used for acquiring, sorting, manipulating, analyzing, retrieving and distributing pertinent information regarding an organization's HR (Ng et al., 2001). Its main purpose is to provide information that is either required by human resource stakeholders or supports human resource decisions (Kovach & Cathcart, 1999). The proper implementation of HRIS can create a competitive advantage for the organization, resulting in lower turnover, increased job satisfaction, high motivation and less internal conflict (Cox & Blake, 1991). Hence, extensive uses of HRIS among business organizations across countries are evident.

Since last decade, the usage of HRIS has increased significantly (Hussain et al., 2007). Most of the organizations in the developed countries have completed adopting HRIS or MIS sub-functions having HR functionalities by this period. Being a junior member in the global business arena, Bangladesh has also

experienced a growth in HRIS practice. However, the HRIS applications used by the Bangladeshi organizations may differ from the global HRIS practice as global and mere domestic HR applications may show different requirement due to cultural and national differences (Hannon, Jelf & Brandes, 1996). Therefore, this study aims at finding the main purposes, applications, effectiveness and infrastructure of HRIS practiced by the Bangladeshi organizations. Additionally, the study also aspires to find the extent of HRIS usage, allocated budget for HRIS development and valuation of HRIS by top management and HR personnel.

2. Literature Review

A human resource information system (HRIS) is defined as a systematic procedure for collecting, storing, maintaining, retrieving and validating data needed by an organization about its human resources, personnel activities and organization unit characteristics (Walker, 1982). It is designed to support the planning, administration, decision making and control activities of human resource management (Desanctis, 1986). HRIS can be as informal as the payroll records and time cards of a small business, or as extensive and formal as the computerized human resource database of major manufacturers, banks and governments (Kovach & Cathcart, 1999). According to Desanctis (1986) modern HRIS supports as many business applications as employee selection and recruitment, compensation, benefit and pension management, training projections and development planning, career pathing, personnel evaluation, leave management and equity monitoring rather than simply record keeping and payroll development. Hence, both the number of organizations adopting HRIS and the depth of applications within the organizations are continually increasing (Cedar Crestone, 2005).

The earliest mechanized employee information systems appeared in the 1940s, and through the 1950s, ran on sorting and tabulating equipment, concerned only with monitoring employee records and payroll activities (Desanctis, 1986). The trend continued until 1960 and very few organizations had any sort of information system operated by the personnel department (Desanctis, 1986). The trend changed by 1971 when approximately 60% of 150 largest banks, life insurance and retailing companies in united states adopted operational computer systems for human resources and 40% of all fortune 500 firms had implemented such systems (Desanctis, 1986). The interest in HRIS has amplified by 1980 as studies revealed that 40% of all business firms in U.S. had implemented HRIS and 80% of the firms without HRIS reported their need for it (Richards-

Carpenter, 1982). Zientara (1983) concluded that, 80% of all U.S. corporations with over 5000 employees have a formally established HRIS and expected that, by 2000 nearly all major corporations will have an established HRIS with associated management and technical staffs. More recent researches showed that the number of organization gathering, storing and analyzing information regarding their human resources through the use of HRIS or other types of software having HR functionality have increased considerably (Ball, 2001; Barron et al., 2004; Hussain et al., 2007).

Early surveys on HRIS suggested that HRIS were used predominantly to automate routine tasks and “to replace filing cabinets” (Martinsons, 1994). Forces including: increased organizational size and complexity, continued physical dispersion of firms across geographical areas, government regulations and reporting requirements for employees and overall increase in white collar work which demand a greater verity of skills for any given job created pressure for a specialized information system within personnel area (Hennessey, 1979). Though, a survey of personnel executives in 1971 resulted that a significant amount of executives (32% of 233 executives) did not perceive any improvement in the quality of service of the department after a computer based information system is installed (Mayer, 1971). A later study confirmed that development of a computer based system within the personnel department let to fewer decision errors and greater perceived status of the human resource area by organizational managers (Wolfe, 1978). In recent years, the demand for useful information about the human resource has increased due to the growth in strategically focused HRM culture (Ball, 2001). Thus, the recent researches show greater use of HRIS in support of strategic decision making by HR (Hussain et al., 2007).

The main purpose of HRIS is to make the entire HRM functions strategic (Marler & Fisher, 2013). Its central mission is the provision of quality of information and mechanized processes to the full range of HR functions that might benefit from its data and services (Hubbard et al., 1998). According to Kovach & Cathcart (1999), HRIS purposes are categorized as administrative purposes that reduce processing cost and time, and decision support applications that assist HR managers, non-HR managers and employee to make better decisions. A few case studies on HRIS indicated a reduction of HR staff, faster processes, cost reduction and a release from administrative burdens due to the automation of HR activities (Ruël et al., 2004). Savings within HR department were also evident due to the shifting of responsibilities from HR to line managers and employees (Ruël et al., 2004). Researches on HR portals and

employee self service systems revealed increase of employee acceptance and satisfaction due to added value like time savings and increased accuracy of results (Strohmeir, 2007). Though, some researchers (Gardner et al., 2003) criticized that the HR professionals had to spend additional time on information related activities and on developing information technology related qualifications rather than spending time on their routine tasks, researches concerning efficiency consequences showed some support for productivity gains due to the automation of routine HR activities (Strohmeir, 2007). Findings regarding effectiveness of HRIS also showed improvements (Strohmeir, 2007).

3. The current study on HRIS

The last decade has seen a widespread use of HRIS or information systems with HR functionalities in Bangladesh. During this time, almost all of the multinational organizations having offices in Bangladesh implemented independent HRIS or HRIS sub-function under their respective corporate MIS in-order to meet their international standard requirement. A significant number of large and medium local organizations also implemented automated systems for supporting their HR activities during this period. The current research surveyed 79 organizations, both local and multinationals, and tried to explore the HRIS usage by the organizations using following research questions:

1. What is the extent of exposure to HRIS by the organizations?
2. What are the main purposes of their HRIS usage?
3. What is the extent of integration between HRIS and corporate MIS?
4. What are the major applications and functions of HRIS?
5. How much the organizations are spending for HRIS development?
6. How effective the HRIS is in terms of its usage?
7. How the top management and HR personnel are valuing the HRIS?

The surveyed organizations are selected on random basis fulfilling two basic selection requirements (1) currently minimum 25 employees are appointed and (2) having an independent HR department. A questionnaire of 25 questions (Combination of fixed choice and open-ended questions) was sent to the selected organizations. Information from 58 local organizations (74.7% of total organizations surveyed) and 20 multinational organizations (25.3% of total organizations surveyed) were used for the study. Table 3.1 lists the product and services offered by the participating organizations.

Table 3.1: Product/Service offered by the participating organizations

		Frequency	Percent
Valid	Food and Beverage	4	5.1
	Telecommunication	8	10.1
	Retail chain	4	5.1
	Financial services	18	22.8
	Educational institute	7	8.9
	Medical services	4	5.1
	Real estate	1	1.3
	Garment manufacturer	7	8.9
	Other manufacturer	14	17.7
	Software/IS service	5	6.3
	NGO	1	1.3
	Pharmaceuticals	5	6.3
	Hotels / Recreation	1	1.3
	Total	79	100.0

4. Findings and analysis

The extent to exposure to HRIS:

The first thing that the current research intended to study is the extent to which organizations are exposed to the use of HRIS. As table 4.1 refers, 25 organizations (31.6% of total) are using fully automated HRIS. A greater number of organizations (48 in number and 60.8% of total) are using partially automated HRIS – where some of the HR functions require direct human effort for completion. Only 6 organizations (7.6% of total) have reported that they are not at all automating their HR activities.

Table 4.1: The extent to exposure to HRIS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Full automated	25	31.6	31.6	31.6
Partially automated	48	60.8	60.8	92.4
Manual	6	7.6	7.6	100.0
Total	79	100.0	100.0	

Interestingly, 60% of multinational organizations (12 out of 20) are using fully automated HRIS while only 22% of local organizations (13 out of 59)

reported to have full automated HRIS. In case of partially automated HRIS, 69% of local organization (41 out of 59) has shown their consent against 35% multinational organizations (7 out of 20). Only 8.4% of locals (5 out of 59) and 5% of multinationals (1 out of 20) has expressed that they do the HR task manually.

Table 4.2: Organization type vs. extent of exposure to HRIS

		Extent of exposed to HRIS			Total
		Full automate	Partially automat	Manual	
Organization	National	13	41	5	59
	Multinational	12	7	1	20
	Total	25	48	6	79

4.1 Main purpose of HRIS usage

Two UK based studies revealed that the general application of IT in HR has spread but remains on an administrative level. Mainly administrative task like payroll are supported while advanced strategic or decision support oriented applications are lacking (Kinnie & Arthurs, 1996). However, in every case the purpose of HRIS is to provide information that is either required by the human resource stakeholders or supports human resource activities (Kovach & Cathcart, 1999). The current study measures the usage purpose of HRIS by the organizations against four levels (the model was used by Desanctis, 1986) and discovered that 16 organizations (21.9% of total) are using HRIS for record keeping only while 17 organizations (23.3% of total) are using HRIS for both record keeping and daily reporting. A number of 19 organizations (26% of total) reported to use HRIS for record keeping, daily reporting and decision making. Remarkably, 21 organizations (28.8% of total) are using HRIS for HR planning addition to all other mentioned purposes (Table 4.3).

4.2 HRIS and its integration with corporate MIS

Though, the initial objective of implementing HRIS was automating HR activities like record keeping and daily reporting, organizations are now enhancing HR's role as strategic partner because of the technological advancement of HRIS.

Table 4.3: Main purpose of using HRIS by the organization

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Record keeping only	16	21.9	21.9	21.9
Record keeping & daily reporting	17	23.3	23.3	45.2
Record keeping, daily reporting & decision making	19	26.0	26.0	71.2
Record keeping, daily reporting, decision making & HR planning	21	28.8	28.8	100.0
Total	73	100.0	100.0	

Therefore, it becomes crucial for the organization to make HRIS a part of their corporate MIS. Regrettably, only 14 organizations from the current study reported to have HRIS as a part of their corporate MIS. Majority of the organizations (35 out of 73 organizations - somewhat exposed to automated HRIS) reported to have fully independent HRIS while other 24 organizations have partially independent HRIS.

Table 4.4: Integration of HRIS with corporate MIS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Full independent to central MIS	35	44.3	44.3	44.3
Partially independent to central MIS	24	30.4	30.4	74.7
Part of corporate MIS	14	17.7	17.7	92.4
Manual system	6	7.6	7.6	100.0
Total	79	100.0	100.0	

4.3 HRIS functions and applications:

Today's information systems demand a level of technical sophistication and managerial skill far beyond what was required by the simple recording standardized transactions in stand-alone files (Dawes, 1994). Modern HRIS provides a significant number of computer applications to facilitate different functionalities within the boundary of HR department. Current research enlighten few HR applications like Human resource record keeping and control, Employee attendance monitoring, Benefits administration, Compensation

administration, Recruiting and Selection management and Training and Development management as highly available HR applications (frequency of availability is above 60% in all cases). However, some other modules like position control, safety assessment etc also have somewhat exposure (Table 4.5 illustrates the results). It is important to note that, the mentioned applications are mutually exclusive and organizations may have more than one application.

Table 4.5: Available application module in HRIS

<i>Module</i>	<i>Availability (%)</i>
Human resource record keeping and control	94
Employee attendance monitoring	86
Benefits administration	78
Compensation administration	76
Recruiting and Selection management	70
Training and Development management	66
Position control	48
Application flow management	46
Safety assessment and control	44
Equity monitoring and control	26
Collective bargaining management	12

Findings also revealed that some of the HR functions are used more frequently than others. HR administration, standard reporting and database retrieval are the most frequently used HR functions while Government reporting and HR assessments are occasionally used by the participant organizations (Table 4.6 presents the result).

Table 4.6: List of frequently used HRIS functions

<i>Functions</i>	<i>Most Frequent (%)</i>	<i>Frequent (%)</i>	<i>Irregular (%)</i>
HR administration	80	12	8
Standard reporting	70	20	10
Database retrieval	58	16	26
HR Planning	48	24	28
Assessing HR policy	34	22	44
Assessing HR productivity	32	20	48

Government reporting	4	6	90
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Proper automation of these HR functions requires complex software tools. Majority of the organizations (39 out of 79 and 49.4% of total) uses customized software and they have outsourced the software development activities to 3rd party software vendor. However, some organizations (27 in number and 34% of total) have their in-house software development team for software development while only 7 organizations considered commercial-off-the-shelf's as potential source of HRIS software.

Table 4.7: Source of HRIS software

Software source	Frequency	Percent	Valid Percent	Cumulative Percent
Valid COTS	7	8.9	8.9	8.9
Customized – In-house	27	34.2	34.2	43.0
Customized outsourced	39	49.4	49.4	92.4
No software used	6	7.6	7.6	100.0
Total	79	100.0	100.0	

As the new applications within the HR department are evolved, it is very important for the organizations that they update their software regularly. However, update and maintenance of the software can be an issue of expense for the organizations. Most of the organizations (52 out of 79) have expressed their need for HRIS maintenance and updates regularly (daily, weekly or monthly basis), while only a few organizations (21 out of 79 and 26.6% of total) updates their HRIS on need basis. The update frequencies are listed in Table 4.8.

Table 4.8: HRIS maintenance and update schedule

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Daily	23	29.1	29.1	29.1
Weekly	13	16.5	16.5	45.6
Monthly	16	20.3	20.3	65.8
Irregular / need based	21	26.6	26.6	92.4
No Software used	6	7.6	7.6	100.0
Total	79	100.0	100.0	

4.4 HRIS development budget:

Several researchers argued that HRIS success is not related to the dollar amount of the initial investment in the system (Tomeski & Lazarus, 1973). However, the HRIS budget plays vital role in long term strategic planning and development of the functional areas of HR. Therefore Kovach and Cathcart (1999) termed expenses on HRIS as an investment. Remarkably, a significant number of organizations (25 out of 79 and 31.6% of total) have reported that their HRIS budget is included within the corporate IT budget; hence no specific budget is allocated for HRIS development. A greater portion of the organizations (45 out of 79 and 56.9% of total) reported to have HRIS budget varying within the range of 0% to 10% of total IT budget. Only few organizations are allocating more than 10% of total IT budget for HRIS development. Few organizations currently having manual HRIS also allocated funds for automating few of their HR activities (Table 4.9).

Table 4.9: Budget allocation for HRIS development

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid More than 10%	8	10.1	10.1	10.1
5 to 10%	18	22.8	22.8	32.9
2 to 5%	14	17.7	17.7	50.6
Below 2% and above 0%	13	16.5	16.5	67.1
Not disclosed	25	31.6	31.6	98.7
No fund allocated	1	1.3	1.3	100.0
Total	79	100.0	100.0	

4.5 The effectiveness of HRIS:

Major empirical studies concerning HRIS characteristics and its perceived strategic effectiveness on the HR functions and the HR managers showed a significant positive relationship (Marler & Fisher, 2010). The current research also supports this finding while majority of the participant organizations (68 out of 72 and 93.2% of total) has recognized positive effectiveness of HRIS on record keeping activities. Only 5 organizations (6.8% of total) have reported moderate effectiveness and no one has reported HRIS as ineffective (Table 4.10).

Table 4.10: Effectiveness of HRIS on record keeping

		Frequency	Percent
Valid	Highly effective	68	93.2
	Moderately effective	5	6.8
	Not effective	0	0.0
	Total	73	100.0

Research on effectiveness of HRIS on daily reporting and decision making activities also showed somewhat similar result (Table 4.11) while majority of the organizations reported to experience positive impact of HRIS on their daily reporting and decision making activities (55% and 60.5% respectively). However, few organizations (23.3% and 11.6% respectively) pointed that, in terms of daily reporting and decision making, their HRIS is yet to reach to the effective level. It is imperative to note that only 60 organizations have reported to use HRIS for daily reporting and 43 organizations have reported to use it for decision making.

Table 4.11: Effectiveness of HRIS on daily reporting and decision making

	Daily reporting		Decision Making		
	Frequency	Percent	Frequency	Percent	
Valid	Highly effective	33	55.0	26	60.5
	Moderately effective	13	21.7	12	27.9
	Not effective	14	23.3	5	11.6
	Total	60	100.0	43	100.0

In case of effectiveness regarding HR planning, out of 29 organizations, the research found a greater extent of organization has reported HRIS effectiveness as highly positive (Table 4.12). Only two organizations reported about their struggle in terms of getting effective result in HR planning.

Table 4.12: Effectiveness of HRIS in HR planning

		Frequency	Percent
Valid	Highly effective	23	79.3
	Moderately effective	4	13.8
	Not effective	2	6.9
	Total	29	100.0

4.6 HRIS and its valuation at corporate level:

Kovach and Cathcart (1999) have highlighted lack of money and top management support as the two major barriers for HRIS effectiveness. Therefore it is important to know the perception of the top management towards HRIS. In Bangladesh, as the current research indicates, 70% of the cases, the top management recognizes HRIS as a highly valued system. However, there are some cases where it is found to be not valued at all.

Table 4.13: HRIS valued by top management and HR personnel

	Top management		HR Personnel	
	Frequency	Percent	Frequency	Percent
Valid Highly valued	56	70.9	62	78.5
Moderately valued	14	17.7	15	19.0
Not valued	9	11.4	2	2.5
Total	79	100.0	79	100.0

Personnel within the HR department also regarded HRIS as highly valued as it is reducing time, effort and cost of data storage and retrieval. However, only a few HR executives argued that the result they were expecting from HRIS is yet to be achieved.

5. Conclusion:

The research confirms the widespread use of HRIS in Bangladeshi organizations. Though greater proportions of the organizations are using partially automated HRIS, the value of HRIS towards the top management and HR personnel is very high. HRIS proved to be very effective in record keeping and daily reporting functions. Effectiveness is also evident in case of decision making and HR planning. Still, organizations are reluctant to allocate high budget for HRIS development.

The research also outlined available application modules and frequently used HR functions. It is expected that newer applications within HR will continue to be evolved and the complexity of HRIS will grow. In recent years, HR activities have become more strategic and HRIS is widely used for developing corporate strategy with other MIS sub-functions. However, the study failed to determine proper integration between HRIS and corporate MIS within Bangladeshi organizations. A future study on the same scope can be initiated to develop a roadmap for enhancing incorporation between HRIS and corporate strategy.

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