



To assess the Impact of HRIS in Facilitating Information Flow among the select Software Companies in Bangalore, India

M Nishad Nawaz

Department of MBA and Research Centre, East West Institute of Technology, Bangalore, Karnataka, INDIA

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Abstract

21st century is recognized for its information outbreak, technological advancement and also for diffusion of such knowledge and information through HRIS for successful functioning of organizations. Besides the success, survival of an organization heavily depends on how best the right information is collected and used for taking right decision in the right context. With this background, an attempt has been made to assess the importance and impact of HRIS in disseminating the information among the select software companies in Bangalore.

Keywords: Human resource information systems, information flow, employee security, recruitment, strategic information.

Introduction

The Human Resource Information System (HRIS) is the most recent in a progression of functionally oriented information systems, which reflects the trend towards end user computing . The HRIS encompasses a wide range of computer based applications, but comprehensive conceptual models of the HRIS generates very useful information for the organizations individual managers. Human resource information systems (HRIS) have been used in HR departments for many years, but more recently their use has changed to that of playing a more strategic role to support HR workers, in particular HR managers. HRIS reduces the need for large number of HR employees by helping employees to control their own personal information and by allowing managers to access relevant information and data, conduct analysis, make decisions, and communicate with others without consulting an HR professional. Ideally, with an appropriate use of HRIS, less people should be needed to perform administrative tasks such as record keeping and more time would be made available for HR managers to assist by providing data on a strategic level. HRIS is used in strategic planning also. Organizations change their HR policies and practices due to technological development. It also provides a lot of information to top management in taking timely decision on administrative matters. With the help of sound HRIS the organizations can adopt new changes in HR functions such as planning, recruitment, selection and training of employees.

Review of Literature: Al-Tarawneh, Haroon Tarawneh analyzed the effect of applying Human Resources Information System in corporate performance in the banking sector in Jordanian firms and found that there is a significant effect between the quality of the output of Human Resources Information System and institutional performance; between motives and corporate performance; between training and

organizational performance in the banking sector in the Jordanian firm¹.

Manar Al-Qatawneh, Bandar Abutayeh Fawwaz A and Al Hammad analysed the effect of the implementation of human resource information systems on job related decisions in commercial banks in Jordan and concluded that all human resource information system implementations have a positive effect on the quality of job related decisions².

Dr Shikha N. Khera and Ms. Karishma Gulati made a research on human resource information system and its impact on human resource planning: A perceptual analysis of Information Technology companies and concluded that HRIS identifies occupied and unoccupied positions in an organization very effectively and accurately³.

Usman Sadiq, Ahmad Fareed Khan, Khurram Ikhlaq and Bahaudin G. Mujtaba analysed the impact of Information Systems on the performance of Human Resources Department and concluded that HRIS is positively used as a tool to achieve greater administrative efficiency by adding value in the department⁴.

K P Tripathi analyzed the role of Management Information System (MIS) in human resource and developed an MIS model to keep control on working of the staff at various levels. The system has been tested in Birla Corporation Ltd and it helped in taking effective decisions concerned with human resources in attendance recording and capturing⁵.

Ellen Vebber studied Children's Memorial Hospital in Chicago one of the nation's leading pediatric hospitals with more than 5,000 employees. It was found that the HR staff at CMH had

manually loaded all information into HRIS system, which created a great risk of input errors⁶.

Vincent Kiarie, conducted a study on the HRIS usage in Africa. He stated that an HRIS database makes it easier to streamline collaborative work and shape the HRH Human Resource for Health) policy in the developing countries. The human resource information systems (HRIS) also provide according to him all employee information, applicant details and resumes, and most effectively serves companies in attendance tracking, applicant tracking, interviewing, and selection⁷.

Tim Smedley from Canfield School of Management report, studied 10 UK organizations to study the impact and advantage of HR and Technology. The study concluded that HRIS empowers the line managers performance in improving the quality of information, reducing administrative burden, improving speed of information, flexibility of information and improving services to the employees producing HR metrics⁸.

Ngai and Wat conducted a survey on the implementation of HRIS in Hong Kong. The researcher examined the use and applications of HRIS. The HRIS implementation benefits in acquiring information and better understanding of the current status of HR has been studied⁹.

Lengnick-Hall and Moritz postulated that HRIS could be implemented at three different levels namely, the publishing of information, the automation of transactions and finally a change in the way human resource management is conducted in the organization by transforming HR into a strategic partner¹⁰.

Jim Meade attempted to explain web HRIS and its multiple advantages in employee and manager self-service, basic personal information, pay, background information of the employee, benefits, time and attendance, investments, training, incentives and career development¹¹.

William Pyle in the paper titled "Information Technology and Human Resource", found that there is a significant role of information technology on human resources such as human resource planning, human function, human resource reengineering, system level problem solving¹².

Ken Gregson found that the information is very important resource for the organizations and acquiring and storing the information, making use of all information wisely and effectively is very vital to the organization¹³.

Spencer pointed out that 80 per cent of the organizations are doing their human resource activities with the help of information technology, through personal computers and interactive voice systems¹⁴.

Research gap: The integration of HRIS and Human Resource Management enhances and facilitates the flow of vital

information in the organizations whenever and wherever required. An effective and efficient flow of information helps the HR managers to take the right decisions. Most of the studies are focused on other industries leaving the software companies, which also contribute sizably to the nation's economic growth. Therefore it is proposed to conduct an in-depth study of select software companies operating in Bangalore. Hence "The impact of HRIS in facilitating information flow among the select software companies in Bangalore, Karnataka" has been taken up for detailed investigation and analysis.

Research Objective: To assess the impact of Human Resource Information Systems on information flow in the select software companies.

Major Null Hypothesis: There is no positive relationship existing between Human Resource Information Systems and the usage of information flow.

Variables Used in the Study for Analysis: Designation of the selected employees has been taken as an independent variable, while information flow has been considered as dependent variable.

Research Methodology

The research was conducted in top the 150 software companies in Bangalore City listed by DQ India Survey of 2008. Out of the 150 companies 50 companies responded positively and accorded permission and 500 questionnaires were administered at the rate of 10 respondents from each company by email and informal discussion. 350 respondents were finally selected by adopting purposive sampling method. The data have been collected from primary and secondary sources and have been analyzed by using descriptive statistics, One-way ANOVA and 't' test.

Results and Discussion

For the purpose two variables viz dependent and independent variables have been considered. The IT professionals selected and their designations are considered as independent variable while the information flow are treated as dependent variables for the analysis.

Differences in the means of information flow scores Dependent Variable as per Differences in Designation Categories Independent Variables of the Sample:

For the study One-way ANOVA was done considering one independent variable (designation categories) and all the dependent variables. In case the 'F' value turned out to be significant 't' tests have been done for all possible pairs of means of the dependent variables, that have been obtained based on the independent variable and conclusions drawn. If 'F' did not turn out to be significant, no 't' tests were done, since they were not necessary. The results thus obtained have been interpreted.

Table-1
Summary of One-way ANOVA results for Information Flow area with the mean values for each Designations

Sl No	Description of the Dependent Variable	S.V	Ss	Df	M.S	F	Designation Means	't' Values
1	Managerial information	B.G	29.37	5	5.87	** 15.3	[ITR M=3.95.] HRE M=3.24. AHRM M=3.52. HRM M=3.80. [HRS M=3.09.] MOD M=3.31.	** 5.75
		W.G	132.10	344	0.38			
		T	161.50	349				
2	Operational information	B.G	8.04	5	1.61	** 10.2	ITR M=2.95. HRE M=2.77. AHRM M=2.79. [HRM M=2.95.] [HRS M=2.45.] MOD M=2.58.	** 4.48
		W.G	54.31	344	0.16			
		T	62.35	349				
3	Personnel management	B.G	8.78	5	1.76	** 5.43	ITR M=3.45. [HRE M=3.65.] AHRM M=3.33. HRM M=3.45. [HRS M=3.05.] MOD M=3.33.	** 6.28
		W.G	111.30	344	0.32			
		T	120.10	349				
4	Recruitment	B.G	13.34	5	2.67	** 13.8	ITR M=3.75. HRE M=3.70. AHRM M=3.59. [HRM M=3.91.] [HRS M=3.23.] MOD M=3.38.	** 6.95
		W.G	66.44	344	0.19			
		T	79.77	349				
5	Motivation of employees report	B.G	17.58	5	3.52	** 8.26	ITR M=2.86. [HRE M=2.27.] AHRM M=2.54. HRM M=2.52. [HRS M=2.94.] MOD M=2.82.	** 2.98
		W.G	146.40	344	0.43			
		T	164.00	349				
6	Personality of employees report	B.G	7.56	5	1.51	** 4.27	[ITR M=2.48.] HRE M=2.63. [AHRM M=2.93.] HRM M=2.64. HRS M=2.86. MOD M=2.80.	** 3.56
		W.G	121.90	344	0.35			
		T	129.50	349				
7	Decision making	B.G	24.98	5	5	** 7.17	[ITR M=3.07.] HRE M=3.42. AHRM M=2.97. [HRM M=3.74.] HRS M=3.18. MOD M=3.16.	** 3.95
		W.G	239.70	344	0.7			
		T	264.70	349				
8	Planning	B.G	14.26	5	2.85	** 6.92	[ITR M=2.63.] HRE M=3.13. AHRM M=2.91. [HRM M=3.24.] HRS M=2.86. MOD M=2.95.	** 4.47
		W.G	141.70	344	0.41			
		T	156.00	349				
9	Organizing and administering	B.G	22.81	5	4.56	** 6.76	ITR M=3.50. HRE M=3.13. AHRM M=3.45.	** 6.39
		W.G	232.00	344	0.67			
		T	254.80	349				

						HRM M=3.06. [HRS M=3.50.] [MOD M=2.76.]	
10	Middle management	B.G	14.59	5	2.92	** 7.92	*[ITR M=3.05.] HRE M=3.32. AHRM M=3.00. [HRM M=3.61.] HRS M=3.27. MOD M=3.20.
		W.G	126.60	344	0.37		
		T	141.20	349			
11	Shared with top managers	B.G	8.06	5	1.61	* 2.77	*[ITR M=3.13.] HRE M=3.53. AHRM M=3.52. HRM M=3.50. [HRS M=3.68.] MOD M=3.45.
		W.G	200.70	344	0.58		
		T	208.80	349			
12	Maintenance	B.G	11.03	5	2.21	** 11.1	ITR M=3.36. [HRE M=3.13.] [AHRM M=3.64.] HRM M=3.15. HRS M=3.32. MOD M=3.29.
		W.G	68.40	344	0.2		
		T	79.43	349			
13	Strategic information	B.G	10.63	5	2.128	** 8.60	*[ITR M=2.57.] HRE M=2.89. AHRM M=2.60. HRM M=2.92. [HRS M=3.05.] MOD M=3.02.
		W.G	85.07	344	0.247		
		T	95.71	349			
14	Application Tracking	B.G	6.04	5	1.20	* 5.81	ITR M=3.77. HRE M=3.62. AHRM M=3.69. [HRM M=3.85.] [HRS M=3.36.] MOD M=3.53.
		W.G	71.50	344	0.20		
		T	77.55	349			
15	Employee abilities report	B.G	10.15	5	2.032	* 6.24	ITR M=2.91. [HRE M=2.61.] AHRM M=2.79. [HRM M=3.05.] HRS M=3.00. MOD M=3.02.
		W.G	111.98	344	0.326		
		T	122.14	349			
16	General work activities	B.G	9.92	5	1.99	** 3.83	ITR M=3.20. [HRE M=3.43.] AHRM M=3.22. HRM M=3.26. HRS M=2.95. [MOD M=2.95.]
		W.G	178.10	344	0.52		
		T	188.10	349			
17	Employee security	B.G	6.72	5	1.345	** 3.66	*[ITR M=3.05.] HRE M=3.05. [AHRM M=2.69.] HRM M=2.83. HRS M=3.00. MOD M=3.02.
		W.G	126.13	344	0.367		
		T	132.85	349			
18	Promotions	B.G	11.05	5	2.211	** 6.65	ITR M=3.57. [HRE M=3.59.] AHRM M=3.22. HRM M=3.36.
		W.G	114.31	344	0.332		
		T	125.37	349			

						[HRS M=3.14.] MOD M=3.18.	
19	HR management	B.G	10.712	5	2.142	** 6.4	ITR M=3.54. [HRE M=3.37.] AHRM M=3.48. [HRM M=3.86.] HRS M=3.45. MOD M=3.65.
		W.G	115.64	344	0.336		
		T	126.35	349			
20	Lower level management	B.G	11.43	5	2.288	** 6.30	[ITR M=3.27.] HRE M=2.94. AHRM M=2.79. HRM M=2.77. [HRS M=2.64.] MOD M=3.02.
		W.G	125.77	344	0.366		
		T	137.21	349			
21	Coordinating between HR department	B.G	5.35	5	1.070	** 3.50	[ITR M=3.66.] HRE M=3.59. [AHRM M=3.33.] HRM M=3.45. HRS M=3.50. MOD M=3.35.
		W.G	106.10	344	0.308		
		T	111.45	349			
22	Recruitment	B.G	11.22	5	2.245	** 9.50	[ITR M=3.66.] HRE M=3.59. [AHRM M=3.33.] HRM M=3.45. HRS M=3.50. MOD M=3.53.
		W.G	81.92	344	0.238		
		T	93.15	349			

* Significant at 0.01 level for df 5,344. since the obtained 'F' value is equal to or greater than 3.06 in the corresponding table value of 'F' ** Significant at 0.05 level for df 5,344. since the obtained 'F' value is equal to or greater than 2.24 in the corresponding table value of 'F' * 't' significant at 0.05 level of probability ** 't' significant at 0.01 level of probability

Note-1: ITR: IT Recruiters, HRE : HR Executives, Asst.HRM: Asst. HR Managers, HRM: HR Managers, HRS: HR staff, MODM: Managers of other departments

Note-2: SV: Source of variation, BG: Between Groups, WG: Within Groups, SS: Sum of Squares, DF: Degrees of freedom, MS: Mean Square, SL: Significance level

Note-3: The 't' values have been given in the last column of table-1 't' values with respect to the two means that have been shown in bold font form are the designation means.

The obtained 'F' values given in table-1 are significant at the 0.05 level or at the 0.01 level indicating that there is a significant difference in the mean levels of different designations levels with respect to the dependent variables given in table-1.

Differences in the designations categories of the software professionals working in software companies in Bangalore city do differ significantly in their mean levels of the usage of HRIS that include i. Managerial information ii. Operational

information iii. Personnel management iv. Recruitment v. Motivation of employees report vi. Personality of employees report vii. Decision making viii. Planning ix. Organizing and administering x. Middle management xi. Sharing with top managers xii. Maintenance xiii. Strategic information xiv. Application Tracking xv. Employee abilities report xvi. General work activities xvii. Employee security xviii. Promotions xix. HR management xx. Lower level management xxi. Coordinating between HR department xxii. Recruitment, since many conclusions would emerge if results of all the paired means differences are considered, an attempt is made to compare the highest and lowest means for each variable as shown in table-1and conclusions have been drawn.

Conclusion

- The mean level usage of HRIS in managerial information, of information flow of IT Recruiters is more than the mean level usage of HRIS in managerial information of information flow of Human resource staff. ii. The mean level usage of HRIS in operational information of information flow of human resource managers is more than the mean level usage of HRIS in operational information of information flow of human resource staff. iii. The mean level usage of HRIS in personnel management of information flow of human resource managers is more than the mean level usage of HRIS in personnel management of information flow of human resource staff. iv. The mean level usage of HRIS in recruitment of information flow of human resource managers is more than the mean level usage of

HRIS in recruitment of information flow of human resource staff. v. The mean level usage of HRIS in motivation of employees' report of information flow of human resource staff is more than the mean level usage of HRIS in motivation of employees' report of information flow of HR Executives. vi. The mean level usage of HRIS in personality of employees' report of information flow of Asst Human Resource Managers is more than the mean level usage of HRIS in personality of employees' of information flow of IT Recruiters. vii. The mean level usage of HRIS in decision making of information flow of Asst Human Resource Managers is more than the mean level usage of HRIS in decision making of information flow of IT Recruiters. viii. The mean level usage of HRIS in planning of information flow of Asst Human Resource Managers is more than the mean level usage of HRIS in planning of information flow of IT Recruiters. ix. The mean level usage of HRIS in organizing and administering of information flow of Asst Human Resource Managers is more than the mean level usage of HRIS in organizing and administering of information flow of Managers of other Departments. x. The mean level usage of HRIS in middle management of information flow of Human Resource Managers is more than the mean level usage of HRIS in middle management of information flow of IT Recruiters. xi. The mean level usage of HRIS in sharing with top managers of information flow of Human Resource Staff is more than the mean level usage of HRIS in sharing with top managers of information flow of IT Recruiters. xii. The mean level usage of HRIS in maintenance of information flow of Asst Human Resource Managers is more than the mean level usage of HRIS in maintenance of information flow of Human Resource Executives. xiii. The mean level usage of HRIS in strategic information of information flow of Human Resource Staff is more than the mean level usage of HRIS in strategic information of information flow of IT Recruiters. xiv. The mean level usage of HRIS in application tracking of

information flow of Human Resource Managers is more than the mean level usage of HRIS in application tracking of information flow of Human Resource Staff. xv. The mean level usage of HRIS in employee abilities report of information flow of Human Resource Managers is more than the mean level usage of HRIS in employee abilities report of information flow of Human Resource Executives. xvi. The mean level usage of HRIS in general work activities of information flow of Human Resource Executives is more than the mean level usage of HRIS in general work activities of information flow of Managers of other departments. xvii. The mean level usage of HRIS in employee security of information flow of IT Recruiters is more than the mean level usage of HRIS in employee security of information flow of Assistant Human Resource Managers. xviii. The mean level usage of HRIS in promotions of information flow of Human Resource Executives is more than the mean level usage of HRIS in promotions of information flow of Human Resource Staff. xix. The mean level usage of HRIS in HR management of information flow of Human Resource Managers is more than the mean level usage of HRIS in HR management of information flow of Human Resource Executives. xx. The mean level usage of HRIS in lower level management of information flow of IT Recruiters is more than the mean level usage of HRIS in lower level management of information flow of Human Resource Staff. xxi. The mean level usage of HRIS in coordinating between HR department of information flow of IT Recruiters is more than the mean level usage of HRIS in coordinating between HR department of information flow of Assistant Human Resource Managers. xxii. The mean level usage of HRIS in recruitment of information flow of IT Recruiters is more than the mean level usage of HRIS in recruitment of information flow of Assistant Human Resource Managers.

Table-2
Analysis of all Variables in the area of Information Flow

NIL	ITR N=56. M=114.19. SD=5.25.	HRE N=93. M=115.35. SD=4.30.	AHRM N=58. M=114.81. SD=5.09.	HRM N=66. M=118.22. SD=4.37.	HRS N=22. M=112.40. SD=5.00.	MOD N=55. M=114.16. SD=3.88.
ITR N=56. M=114.19.		NS 1.39	NS 0.63	** 4.55	NS 1.4	NS 0.04
HRE N=93. M=115.35.			NS 0.68	** 4.11	*	NS 1.73
AHRM N=58. M=114.81.				** 3.98	NS 1.91	NS 0.76
HRM N=66. M=118.22.					** 4.87	** 5.41
HRS N=22. M=112.40.						NS 1.48

* 't' more than or equal to 1.98 at .05 level for respective df

** 't' more than or equal to 2.61 at .01 level for respective df

Minor Null Hypothesis: Differences in designation of software professionals working in companies would not account for significant differences in their mean usage levels of all the variables of Information Flow

In table 2 the 't' values pertaining to mean differences of possible pairs of means of different designation categories are given.

i. The mean usage level of Information Flow of Human Resource Managers is more than the mean usage level of Information Flow of IT Recruiters. ii. The mean usage level of Information Flow of Human Resource Executives is lesser than the Human Resource Managers and more than the mean usage level of Information Flow of Human Resource Staff. iii. The mean usage level of Information Flow of Human Resource Managers is more than the mean usage level of Information Flow of Human Resource Staff and Managers of other departments. iv. The mean usage level of Information Flow of Human Resource Managers is more than the mean usage level of Information Flow of Human Resource Staff and Managers of other departments.

Findings: The data were analyzed using statistical tools that have been described earlier and the results drawn based on these tests have been given below: i. Designation-wise, the mean usage level of HRIS by IT Recruiters of select software companies in information flow is more than the mean usage level of these variables among other designations. ii. The mean usage of HRIS in information flow area by IT Recruiters, Human Resource Managers and HR staff is more than the mean usage of this area by the other designations. iii. The mean usage level of HRIS in information flow area, is used to a greater extent by the Human Resource Managers than the mean usage of this area by the other groups. iv. The mean usage level of HRIS in information flow among IT Recruiters, Human Resource Executives and Human Resource Managers is more than the mean usage of these variables of other three designations. v. The mean usage level of HRIS in information flow among Asst Human Resource Managers, Human Resource Staff and Managers of other designations is lesser than the mean usage of these variables of other three designations.

Suggestions: The select companies have to explain the significance of HRIS in facilitating information flow through training, seminars, role plays, manuals, discussions and presentations to their staff. i. Further Asst Human Resource Managers, Human Resource Staff and Managers of other departments have to be sent abroad for higher education. ii. In the area of information flow of HRIS Asst. Human Resource Managers, Human Resource Staff and Managers of other departments have used HRIS to a lesser extent. To overcome this, proper training /education to the employees in respect of HRIS on-the-job and off-the-job is to be given. iii. Online training and tests should be conducted for those employees who use HRIS to the maximum extent to enhance their skills.

Conclusion

HRIS is also very much useful in the information flow on various domains of HR processes. In this regard an attempt has been made to present various facets / statements on information flow and analyse HRIS impact on information flow in the software companies in Bangalore City. The overall observation and analysis of the data with the help of statistical tools led to the conclusion that the usage of HRIS has a positive impact on various facets of information flow in the software companies and the findings are also supported by statistical tests and analysis thereon.

Limitation and Further Research: The foremost research limitation is on the subject of the industry perspective. HRIS role in enhancing the flow of information can be studied in any of the sector as human resources are assets of the organizations irrespective of the sector. Future research efforts could be focused into exploring the impact of HRIS in facilitating information flow among more sectors.

The research study was restricted to 350 respondents therefore future research might focus on a generous sample of respondents, in order to validate the results of the study. Consequently, same research can be conducted in future to know whether HRIS is improving with changing time or not.

Other limitation is that the questionnaire survey may endure with the reaction bias, although this is cost-effective and reliable to some extent but not totally reliable. Therefore, field observations and qualitative interviews of managers or concerned persons from the sample are also anticipated.

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