

# **THE INFLUENCE OF HUMAN RESOURCE INFORMATION SYSTEMS ON COMPETITIVE ADVANTAGE OF FIRMS LISTED ON THE NAIROBI SECURITIES EXCHANGE**

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## **Abstract**

*The main objective of the study was to determine the influence of human resource information system on competitive advantage of firms listed on the Nairobi Securities Exchange. The study was grounded on human resource flow theory. The study population consisted of 62 companies listed on the Nairobi Securities Exchange. The study used a cross sectional survey design. Data was collected at one point in time across the organizations. The primary data was collected through a questionnaire. The respondents were 62 heads of HR departments in different firms. The response rate was 63%. Data was analyzed through both descriptive and inferential statistics. The statistical significance of the hypothesized relationship was interpreted based on coefficient of determination and beta coefficient. The findings indicated that HRIS had a positive significant effect on competitive advantage. The results of this study contribute to knowledge by confirming that there is a relationship between HRIS and competitive advantage. Future researchers should incorporate multiples sources such as line managers, workers, customers, suppliers and other stake holders of the company. The study only used self-administered survey questionnaire. The researcher assumed that the responses would provide honestly and by a target group. Since it is not possible to ascertain this assumption, different*

*instruments should be considered in future. The study confined itself to quantitative data collection methods and analysis. Future research could use both quantitative and qualitative data collection methods, which could probably obtain richer data and results.*

*Keywords: Human resource information systems, competitive advantage, Human resource flow theory, Nairobi Securities Exchange*

## **INTRODUCTION**

Organizations operate in a dynamic environment that is dynamic and competitive environment. They need quality information to make sound decisions in response to changes in the environment. For this reason, organizations are continually developing HRIS. This enhances their ability to make informed decisions that help them gain competitive advantage (Tansley, Newell & Williams, 2001). Many organizations spend large amounts of money on HRIS but most of them utilize it just for HR routine purposes which ensure administrative efficiency rather than strategic efficiency which leads to competitive advantage. Some organizations still strive to integrate the HRIS with their overall information system. Greater use of HRIS, at the operational level rather than strategic level, adds little value to a firm's competitive advantage (De Sanctis, 1986). Some organizations are unable to make use of HRIS due to lack of support by top management through the existing system, lack of knowledge on HRIS and because of dependence on traditional methods. Companies listed on NSE operate in a competitive and dynamic environment. They therefore need quality information to make sound decisions in response to changes in the environment and quest to gain competitive advantage.

## **HUMAN RESOURCE FLOW THEORY**

Resource flow theory is an example of system theory that Jay Forrester as a basis for his theory of industrial dynamics (Forester, 1958). The theory indicated how company success depends on the interaction between the flows of information, money materials man, power, man, capital and equipment. Hopeman (1969) did thorough explanations of the resource flow theory. He described manufacturing firm's process composites as material, machine, money, man, power and information flows (Hopeman, 1969). Henry Mintzberg integrated the concept of flows into his theory of organization. He used flows of authority, information, material and decision processes between line and staff units to explain organizational complexity (Mintzberg, 1979).

A resource- flow theory of the human resource information system is identified as the supporting theory for the study. It focuses on the flow of human resources through the firm (McLeod & De Sanctis, 1995). It recognizes that the firm's environment provides a pool of potential employees who are subjected to a screening process before joining the firm. While in the firm, the employees receive training and education perform their tasks and receive evaluation. Eventually the employees terminate their employment and return to the environment. The employees who retire continue to receive benefits. The tasks of the HRIS is to gather the data that tracks this human resource flow, store the data until it is needed and use the data to produce the information that enables person both in the firm and its environment to monitor the flow (McLeod and De Sanctis, 1995).

The resource flow theory of Human Resource Information Systems (HRIS) consists of three subsystems, which include the data input, HRIS databases and output subsystems. The three input subsystems that enter information into the database are HR data processing, HR research and HR intelligence. The data processing subsystem consists of personnel data describing, HR transactions and pay roll data. The data payroll subsystems gather data from both internal and external environment. The HR research subsystems conduct special studies to provide data to firms on HR related activities. The input data come from both inside and outside the firm. HR intelligence subsystem has the responsibility for keeping current on environmental activities that are very important in human resource activities. Data information is gathered from the government, labour unions, competitors and suppliers, local and financial communities (McLeod and De Sanctis, 1995).

The HRIS database is the computer storage composed of all information and data from the input. The storage units can reside in IS, HR or other locations. HRIS database consists of a number of special databases such as employee database, executive search firm databases, college databases, employment agency databases and public access databases. The data describes the firm employees and the environmental elements with which HR interfaces. Output subsystems consist of software that converts data in the database into information outputs. The software may include mathematical models, report writers, office automation packages such as e-mail, desktop publishing and expert systems. HRIS output has six subsystems that include work force planning, recruitment, workforce management, compensation, benefits and environmental reporting which transforms data into useful information and make it available to the users who include individuals and organizations (Wickramaratna, 2011).

The main weakness of the HR flow theory is that some companies do not utilize the HRIS applications as organized in this theory for strategic decision-making (McLeod & De Sanctis, 1995). Many organizations spend large amounts of money on HRIS but most of them

utilize it just for HR routine purposes which ensure administrative efficiency rather than strategic efficiency which leads to competitive advantage (De Sanctis, 1986).

The study adopted the HR flow model because it provides a good framework of HRIS components that should be present and their relationship within a system view. The human resource flow theory provides a good framework for organizing and assessing the major HRIS components. The theory also provides a basis for monitoring progress in HRIS applications development and overall maturity in HRIS discipline. The three main concepts of a system are inputs, processes and outputs, which address a wide variety of HRIS applications thus making the HR flow theory appropriate for this study (Wickramaratna, 2011).

## LITERATURE REVIEW

Several studies concur on the positive influence of HRIS on competitive advantage (Broderick & Boudreau, 1992; Powell & Dent-Micallef, 1997; Hendrickson, 2003). A study conducted by Troshani et.al. (2010) explored the organizational adoption of HRIS of sixteen Australian public sectors. They found that HRIS had been used as a source for achieving cost savings and inimitable competitive advantage. Although the study brought some insight on how HRIS brings a positive relationship with competitive advantage, the study considered factors such as technology context, organization context and environment context as determinant of HRIS competitive advantage. This study focused on (strategic integration, planning and forecasting, human resource analysis, communication and integration, record and compliance) as the independent variable. The study is based on the Australian public sector, and therefore its external validity cannot be ensured. Consequently their finding was not generalized beyond the context of their study suggesting that further research is required in other contexts. The current study focused on companies listed on the Nairobi Securities Exchange in Kenya which has varied contexts since it is composed of private and public sector.

Mayfield et.al. (2003) reviewed literature on HRIS and built model. They provided a comprehensive framework that advances HRIS research (Kuhn, 1995). The model addressed all the major HR components and offered information on how these facets interact to support each other and the larger organizational outcomes. This makes it relevant to use of human resource flow model. The model units consist of organizational vision, communication and integration, strategic integration, records and compliance, performance management, knowledge management, HR analysis and forecasting and planning. Casico (2006) and Obeidat (2012) adopted this model and found that HRIS is driven by a strategic vision is an open system, where information technology facilitates communication freely between integrated features. Such information sharing is crucial to learning organizations that views employees as

their main competitive advantage. The study developed human resource flow model that provided the theoretical foundation of the current study by providing HRIS applications framework. This study only used HRIS dimensions, which include strategic integration, forecasting and planning, communication and integration, records and compliance and HR analysis. The study did not use firm profitability and public image as measures of competitive advantage.

Krishna and Bhaskar (2011) examined the support and benefits of HRIS in medium-scale textiles industry of Hyderabad with a sample of 98 using stratified sampling. Data analysis was performed using cumulative weighted average technique that concluded high levels of information systems exists in medium scale textiles industry and they are able to attain only 2/3 of the benefits. Further the research, based on an evolutionary view of computing growth, suggests improvements in HRIS in order to gain competitive advantage and to maximize the benefits. The study assumed the relationship between HRIS and competitive advantage. This study did not use HRIS dimensions such as strategic integration, forecasting and planning, communication and integration, HR analysis and records and compliance. The study did not use firm profitability and public image as measures of competitive advantage.

Were et.al. (2013) studied resource availability and utilization on the performance of Nairobi police force in Kenya. Using a sample of 150 police officers the researchers found that resource availability and utilization has a positive influence on the performance of the police officers. 10.9% of the corresponding change can be explained by a unit of change in the performance of the police officers. While ICT have led to improvement in the performance of the police in other countries the study found that in the case of Nairobi, ICT is completely not used except at the Police Headquarters/Vigilance House. This study did not use HRIS dimensions such as strategic integration, forecasting and planning, communication and integration, records and compliance and HR analysis. The study did not also use firm profitability and public image as measures of competitive advantage.

The above studies brought some insights into the role of the HRIS on competitive advantage, they did not operationalize the independent variable HRIS into strategic integration, planning and forecasting, human resource analysis, record and compliance and the dependent variable into firm profitability, public image hence leaving a knowledge gap. In addition, they did not use human resource flow theory by May field *et al.* (2003) as theoretical foundation of HRIS applications. In addressing this knowledge gap, the current study incorporated HRIS (strategic integration, planning and forecasting, human analysis and record and compliance) as the independent variable and competitive advantage measures as (firm profitability, public image) as the independent variable.

## RESEARCH METHODOLOGY

### Research Design

A descriptive cross-sectional survey was carried out to determine the influence of HRIS on competitive advantage of companies listed on Nairobi Securities Exchange. Data was collected at one point in time across 62 firms; thus cross-sectional survey was the most appropriate. This means that each respondent filled one questionnaire, once during the entire data collection period. The target population of this study was 62 companies listed on Nairobi Securities Exchange in Kenya. Census method was used as the number was large enough to collect information.

### Data Collection Method

A closed ended questionnaire was used to collect primary data from the companies listed on NSE. The questionnaire was designed on a five-point Likert scale. The responses ranged from 1= strongly disagree; 2 =disagree; 3 = neither disagree nor agree; 4= agree; 5= strongly agree. The questionnaire was divided into two parts. The part A was designed for the statement measuring HRIS on a scale of 1-5. The measures were adapted from Wickramaratna(2011); Part B asked the respondents to rate the competitive advantage where firm profitability adapted from (Busienei, 2013). Cronbalch alpha coefficient was used to determine the reliability of the data collection. As a rule of thumb, the cut-off point value of 0.7 was used. The competitive advantage had reliability coefficient of 0.828 and HRIS with 0.815 respectively. The Cronbalch Alpha of the constructs in the study were well above the threshold of 0.7.

Prior to testing hypotheses using regression analysis it was ensured that the basic assumptions for the application and interpretation of the results were satisfied. Thus Test for normality was carried out a prior to test of hypotheses. The Shapiro-Wilki was used to test normality. Shapiro-Wilki value of less than 0.05 significantly deviates from a normal distribution and suggests that use of statistical tests that require normally distributed is inappropriate.

Table 1. Results of the Tests of Normality test

Variables	Shapiro-Wilki		
	Statistic	Df	Sig.
HRIS	.987	30	.964
Competitive Advantage	.962	30	.350

The Shapiro-wilki results for HRIS was 0.964 and for competitive advantage was 0.350, which were both greater than 0.05 and hence the assumption of normality was satisfied.

Both descriptive statistics (mean, standard deviation and coefficient of variation) and inferential statistics (regression analysis) were used to analyse the data. Linear regression for  $(H_{a1})$ , was used to establish the nature and magnitude of the relationship between HRIS and competitive advantage.

## ANALYSIS AND FINDINGS

### Descriptive Statistics

The findings from the data analysis comprised the means, standard deviations and coefficient of variations considered in the study which include independent variable of HRIS and the dependent variable of competitive advantage. The respondents were asked to indicate the extent to which they agreed or disagreed with statements describing the various variables. This section was designed for the statement measuring HRIS on a scale of 1-5 which was measured according to Wickramaratna (2011) ranging from 1= strongly disagree; 2 =disagree; 3 = neither disagree nor agree; 4= agree; 5= strongly agree.

### *Human Resource Information System*

The study set out to establish HRIS practices in companies listed on the Nairobi Securities Exchange. The respondents were asked to indicate the extent to which their firm focused on the following dimensions of HRIS which includes: strategic integration, forecasting and planning, HR analysis, communication and integration and record and compliance. HRIS was computed as the simple average of the mean score of the five dimensions.

#### Strategic Integration

Strategic integration was assessed by asking the respondents to indicate the extent to which their firm uses HRIS for strategic integration. Nine items were used to measure strategic integration.

Table 2. Strategic Integration

Items	N	Mean	Standard Deviation	Coefficient of variations%
Top managers strongly support the use of HRIS.	39	3.92	0.87	22
Top management makes use of HRIS to make decisions.	39	3.85	1.37	36
There is seamless flow of information between various departments in the organization.	39	4.10	0.85	21



The seamless flow of information between various departments affects the quality of HR decisions in our organizations.	39	3.21	1.61	50
HRIS eliminates skill gaps across the organization.	39	3.41	1.55	45
HRIS provides an opportunity to become strategic partner.	39	2.05	1.10	54
Alignment of the role of HRIS with the organizational HR strategy.	39	2.31	1.06	46
Alignment of the role of HRIS with the organization information system strategy.	39	2.05	0.89	43
HRIS bring out decisions made at the higher level by senior manager.	39	2.15	0.88	40
Total aggregate	39	2.80	0.66	24

Table 2...

The results in Table 2 reveal that aggregate means score for the nine statements used to measure use of HRIS strategic integration was 2.80, Standard deviation was 0.66. The coefficient of variation was 24 percent which show moderate use of strategic integration. The standard deviation and the coefficient of variation indicated a close agreement among the respondents on the moderate use of strategic integration. The lowest mean was on role of HRIS aligns with the organizational informational system with a mean of 2.05 and a standard deviation of 0.89 and coefficient of variation of 43 percent, implying that there is low alignment of HRIS with organizational informational system which most respondents seems to agree on. The item on HRIS provides an opportunity to become strategic partner recorded the lowest (mean= 2.05, standard deviation = 1.10, Coefficient of variation= 54 percent). This reveals that most of the HR managers in companies listed on the Nairobi Securities Exchange had diverse opinions on HRIS providing an opportunity to become strategic partners. HRIS focuses on decisions made at higher level by senior managers had a mean of 2.15 and standard deviation of 0.88, implying that HRIS does not focus decisions made at higher level by senior managers.

The highest mean was on seamless flow of information between various departments with a mean of 4.10, standard deviation of 0.85 and coefficient of variation 21 percent, implying that there is good communication among the various departments in the organization. This corroborates the study of Musyoka (2012) stated that use of increased formal communication reduce role ambiguity and role conflict.



## Forecasting and Planning

The respondents were asked to indicate the extent to which their companies used HRIS for forecasting and planning. Forecasting and planning was measured using 12 items anchored on a five point Likert type scale. Most of the items were borrowed from (Wickramaratna, 2011).

Table 3. Forecasting and Planning

Items	N	Mean	Standard Deviation	Coefficient of variation %
My organization uses HRIS to plan and forecast for succession.	39	2.10	0.995	47
My organization uses HRIS to forecast and plan supply of human resources.	39	3.46	1.48	43
My organization uses HRIS to forecast and plan future human resources requirement of the organization.	39	3.62	1.55	43
My organization uses HRIS to forecast and plan for performance appraisal.	39	2.38	1.09	46
My organization uses HRIS to forecast and plan for salary and wages.	39	2.21	1.08	49
My organization uses HRIS information to forecast and plan future supply and for labour.	39	2.31	1.13	49
My organization uses HRIS to forecast and plan for promotion.	39	2.49	1.10	44
My organization uses HRIS to forecast and plan for transfers	39	2.33	1.01	43
My organization uses HRIS to forecast and plan for recruitment and selection.	39	2.23	0.87	39
HRIS in my organization support forecasting and planning for staffing needs	39	3.03	1.48	49
My organization uses HRIS to forecast and plans for employees' relations.	39	3.00	1.49	50
My organization uses HRIS to forecast and plans for health and safety.	39	2.23	1.11	50
Total Aggregate	39	2.63	0.62	24

Findings revealed that the mean score for the 12 sub-constructs used to measure forecasting and planning was 2.63. The aggregate mean score was 2.63 and the standard deviation of 0.62. The coefficient of variation was 24 percent. These figures reveal there was low disagreement

among the respondents on forecasting and planning. 'My organization uses HRIS to forecast and plan future human resources requirement of the organization' had the highest mean of 3.62, a standard deviation of 1.55 and deviation of a correlation of 43 percent. This means that companies listed in Nairobi Securities Exchange had diverse opinions on the agreement that they use HRIS to forecast and plan future human resource requirement. The finding results reveal that the companies listed on the Nairobi Securities Exchange use HRIS to forecasts and plan for human resource requirement and supply of human resources and not the others.

#### Human Resource Analysis

The respondents were asked to indicate the extent to which their companies use HRIS for human resource analysis. Human resource analysis was measured using twenty three (23) sub-constructs anchored on a five point Likert type scale. The pertinent results are presented in Table 4.

Table 4. Human Resource Analysis

Items	N	Mean	Standard deviation	Coefficient of variation %
HRIS constantly identifies and matches the demand for human resources.	39	3.18	1.54	48
HRIS analyses supply of human resources.	39	3.15	1.65	52
HRIS identifies unfilled positions accurately.	39	2.90	1.52	52
HRIS enables the organization to have the right number and kind of employees, at the right place, at right time.	39	4.37	1.07	24
HRIS analyses each job title and positions	39	3.72	0.69	18
HRIS analyses employees in each position.	39	2.21	1.03	47
HRIS performs comprehensive tracking and reporting of candidates and applicants	39	2.23	1.22	55
HRIS reduces the recruiting cost.	39	2.51	1.12	45
HRIS maintains skill inventory.	39	2.38	1.07	45
HRIS evaluates the recruiting process effectively.	39	2.46	1.00	40
HRIS leverages employees' talents in the right place, in the right time.	39	2.13	1.03	48
HRIS provides insight in into organizations training needs.	39	2.44	1.17	48
The end results of HRIS training need analysis is accurate.	39	2.51	1.14	46

Items	N	Mean	Standard deviation	Coefficient of variation %
HRIS evaluates the effectiveness of training needs.	39	2.56	1.10	43
HRIS evaluates the budget of the training and development programs.	39	2.49	1.14	46
HRIS generates faster decisions about successor rankings.	39	3.08	1.51	49
HRIS assess specific key positions and target specific employees as potential successors.	39	4.38	1.14	26
HRIS determines logical progression path and steps required for advancements.	39	4.33	0.74	17
HRIS places employee to required position and keep track of their movements.	39	1.67	1.01	60
HRIS assist to determine and develop an attractive benefit program that retain employees.	39	2.08	1.16	56
HRIS analysis employee skills and qualifications.	39	1.97	1.05	53
HRIS monitors the progress of aligning corporate goals with employees' goals	39	3.31	1.17	35
HRIS supports a performance-oriented compensation programmes	39	3.77	1.18	31
Total Aggregate		2.67	0.41	15

The findings reveal that mean score for the twenty three statements used to measure human resource analysis was 2.67. The aggregate mean score of 2.67 (neither disagree nor agree), standard deviation of 0.41 and coefficient of variation of 15 percent shows that a large number of HR managers have general disagreement that HR analysis is used in their companies. The majority of the respondents felt that HRIS is used to identify specific key positions and target specific employees as potential successors which had a mean of 4.38, a standard deviation of 1.14 and coefficient of variation of 26 percent. The HR managers of the companies listed on the Nairobi Securities Exchange had a diverse opinion on the agreement that HRIS is used to identify specific key positions and target specific employees as potential successors. The suggestion that 'HRIS connects employee to required position and keeps track of their movements' had the lowest mean of 1.67, a standard deviation of 1.01 and coefficient of variation of 60 percent). This implies that HR managers in the listed companies had diverse opinions on disagreement that HRIS connects employee to required position and keep track of their movements.

## Communication and Integration

The questions in this section were meant to determine the extent to which communication and integration is used by companies listed on the Nairobi Securities Exchange. The respondents were asked to indicate the extent to which their companies use HRIS for communication and integration. To measure communication and integration a set of nine items were used. The pertinent results are presented in Table 5.

Table 5. Communication and Integration

Items	N	Mean	Standard Deviation	Coefficient of variation %
My organization uses HR intranets for communication.	39	3.64	1.14	31
My organization uses portal to gather and present information from its employees.	39	4.00	1.00	25
My organization uses emails to communicate inside and outside the organization.	39	3.85	1.57	41
My organization uses websites to communicate within and outside the organization.	39	2.36	0.96	41
My organization receives application through online.	39	2.23	0.96	43
My organization uses application service provider to manage HRIS.	39	2.26	0.99	44
HRIS simulations models support HR decisions.	39	2.36	0.90	38
HRIS develops an environment of open communication between management and employees	39	2.54	0.97	38
HRIS perceive the integrity and effectiveness of current communication culture.	39	4.28	1.28	30
Total Aggregate	39	2.93	0.46	16

The results in Table 5 show that the overall mean score of communication and integration is 2.93. The total aggregate mean of 2.93, standard deviation of 0.46 and coefficient of variation of 16 percent mean that the majority of the organizations are not sure whether they use HRIS for communication and integration. That 'HRIS perceive the effectiveness and integrity of current communication culture' had the highest score mean of 4.28, a standard deviation of 1.28 and

coefficient of variation of 30 percent followed by the statement, 'the organization uses portal to gather and present information from its employees,' which had a mean score 4.00, standard deviation of 1.00 and coefficient of variation of 25 percent. This means that the majority of companies HR managers feel that HRIS is able to perceive the effectiveness and integrity of current communication culture. They also feel that the companies listed on the Nairobi Securities Exchange uses portal to gather and present information from its employees, which had a mean of 4.00 and a standard deviation of 1.00. This means that the companies use HRIS communication and integration in certain areas and not others.

### Records and Compliance

The respondents were asked to indicate the extent to which their companies use HRIS for record and compliance. Record and compliance was measured using 8 items anchored on a five point Likert type scale. The pertinent results are presented in Table 6.

Table 6. Records and Compliance

Items	N	Mean	Standard Deviation	Coefficient of variation %
My organization has HRIS databases management system software to hold data for employees.	39	2.74	0.94	34
My organization has HRIS record on staff planning, monitoring and budgeting.	39	3.10	1.10	35
My organization has HRIS record on performance management and training and development.	39	2.92	0.98	34
My organization has HRIS records on pay, grading and allowances.	39	3.33	1.06	32
My organization has HRIS record on employer/Employee relations.	39	3.26	1.53	47
My organization HRIS records on senior executive service.	39	4.59	0.55	12
My organization has HRIS records on corporate strategy.	39	2.26	0.91	40
My organization meets legal requirements that mandate information retention.	39	2.23	1.04	47
Total Aggregate	39	3.12	0.53	17

Table 6 findings reveal that the mean score for the 8 items used to measure records and compliance was 3.12. The aggregate mean score of 3.12 (neither disagree nor agree), standard deviation of 0.53 and coefficient variations of 17 percent reveals that HR managers are moderate on the use of records and compliance in their organizations.

The majority of HR managers strongly agreed that a company that has HRIS record on senior executive service which had a mean of 4.59, standard deviation of 0.55 and coefficient of variation of 12 percent. The lowest mean was on whether they meets legal requirements that mandate information retention which had a mean of 2.23, standard deviation of 1.04 and coefficient of variation 47 percent. The majority of the organizations had general disagreement on the statement whether they meets legal requirements that mandate information retention which implies that the companies listed on the Nairobi Securities Exchange do not meets the legal requirements that mandate information retention.

### ***Competitive Advantage***

Firm experiences competitive advantage when its action in an industry or market creates economic value and when few competing firms are engaging in similar actions. Competitiveness is the capacity of the firm to achieve its target (Barney, 2001). The study set out to establish competitive advantage practices in companies listed on the Nairobi Securities Exchange. The respondents were asked to indicate the extent to which their firm focused on the following dimensions of competitive advantage which includes: public image, profitability. HRIS was computed as the simple average of the mean score of the five dimensions. Table 7 show how dimensions of competitive advantage were used in companies listed on the Nairobi Securities Exchange.

Table 7. Competitive Advantage

<b>Public Image</b>	<b>N</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Coefficient of variation %</b>
The suppliers have positive attitude towards my organization.	39	3.36	1.56	47
Organization investors are happy about their choice.	39	3.13	1.56	37
Business ratings in securities market are favorable.	39	2.67	1.55	58
My organization gets positive feedback from market perception survey.	39	4.15	1.41	34
Customers have a positive attitude toward my organization.	39	3.74	0.72	19
Media reports about the organization positively.	39	2.23	1.09	49

The surrounding community has a positive attitude towards my organization.	39	2.21	1.20	54
Employees have a positive attitude toward my organization.	39	2.49	1.10	44
Aggregate		2.92	0.58	20
<b>Profitability</b>				
My organization high profitability from current operations without regard to the interest charges accruing from the capital structure.	39	2.36	1.04	44
My organization ability to yield profits and cover operating expenses is usually high.	39	2.44	0.97	40
My organization earnings available to the owners of common stockholders are usually high.	39	2.10	1.00	47
My organization return on sales (net profit margin) is usually high.	39	2.44	1.17	48
My organization gross profit margin is usually high,	39	2.51	1.14	46
My organization after-tax profits per sales are usually high.	39	2.56	1.10	43
My organization operating profit margin is usually high.	39	2.46	1.10	44
My organization measure of the return on total investment is usually high.	39	2.27	1.07	47
My organization measure of the rate of return on total investment which the owners of the common stock have made is usually high.	39	4.31	0.77	18
My organization measure of the rate of return on the stockholders investment is usually high.	39	4.33	0.74	17
Total Aggregate		2.73	0.45	16

The respondents were asked to indicate the extent to which public image practices are applied in their organization. The highest mean score was on my organization get positive feedback from market perception survey with a mean of 4.15, a standard deviation of 1.41 and coefficient of variation of 34 percent). This means that the majority of HR managers generally agree that 'customers have a positive attitude toward my organization.' This means they differed in opinions despite the high score on their positive perception customer survey feedback on customer survey. This was followed by moderate score of 3.36, standard deviation of 1.56 and coefficient of variation of 47 percent on the statement that 'suppliers have positive attitude towards the organization. This implies that the respondents had diverse opinions on supplier's attitude towards the organization. The lowest mean score was 2.21 on the item that 'the surrounding community has a positive attitude towards my organization' with a standard



deviation of 1.20, implying that respondents feel that the community have a negative attitude toward the organizations. The standard deviation of 1.20 shows that there were varied responses on the attitude of community towards the organizations. The overall mean score on eight statements on public image was 2.92 shows that the majority of HR managers of companies listed on the Nairobi Securities Exchange are neutral with the statements of public image practices in their organizations.

Ten items were used to measure profitability in organization drawn from Busienei (2014). The highest mean of 4.33 and coefficient of variation of 17 percent on the rate of return on the stockholders investment in the enterprise is high and standard deviation 0.74. This mean that the majority of HR managers generally agree that the measure of the rate of return on the stockholders investment in their organization is high. The measure of the rate of return on total investment which the owners of the common stock have made in the firm is usually high had the mean score of 4.31, a standard deviation of 0.77 and coefficient of variation of 17 percent. This mean that the majority of HR managers generally agree that the 'measure of the rate of return on total investment which the owners of the common stock have made in the firm is usually high.

The overall mean score of 2.73 and coefficient of variation of 16 percent show that the majority of HR managers of companies listed on the Nairobi Securities Exchange are neutral with the statements of profitability practices in their organizations.

### **Regression analysis (Inferential statistics)**

#### ***Human Resource Information System and Competitive Advantage***

The objective sought to determine the relationship between HRIS and competitive advantage. HRIS was measured using strategic integration, forecasting and planning, human resources analysis, communication and integration, record and compliance. The competitive advantage was measured using public image and profitability. Composite indices were computed for each of the constructs of HRIS and competitive advantage. Based on the objective, the following hypothesis was formulated which was tested using regression analysis:

Ha<sub>1</sub>: There is a significant relationship between HRIS and competitive advantage

Table 8. Regression Results for the Effect of HRIS on Competitive Advantage

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588 <sup>a</sup>	.345	.322	.38541

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.194	1	2.194	14.770*	.001 <sup>b</sup>
	Residual	4.159	28	.149		
	Total	6.353	29			

  

Coefficients <sup>a</sup>						
Model		Unstandardized		Standardized	T	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	.427	.634		.673	.507
	HRIS	.845	.220	.588	3.843*	.001

a. Dependent Variable: Competitive Advantage

b. Predictors: (Constant), HRIS

c. \*P<0.05

The results in Table 8 indicate that HRIS explained 34.5 percent ( $R^2 = 0.345$ ) on the competitive advantage with remaining 65.5 percent explained by the other variables not in the study. The regression model was significant ( $F=14.770$ ,  $p < 0.05$ ) indicating that the model fit the data and thus was suitable for use in testing the hypothesis. The beta coefficient shows that HRIS had a significant effect on competitive advantage ( $B = 0.845$ ,  $t = 3.843$ ,  $P < .05$ ). This implies that a unit change in HRIS increases competitive advantage by 0.845 (84.5 percent). This confirms the hypothesis that there is a significant relationship between human resource information system and competitive advantage of firms listed in the Nairobi Securities exchange.

## CONCLUSIONS

The first major finding from the objective of the study is that the relationship between HRIS and competitive advantage of firms listed on the Nairobi Securities Exchange was positive and significant. As shown in Table 8 for every one unit increase in the use of HRIS, competitive advantage increases by .845 or 84.5 percent. This is in line with many HRM scholars who argued that HRIS have effects on competitive advantage. Most of the research done has demonstrated statistically significant relationship between HRIS and competitive advantage. The current study agreed with Powell and Den Micallef (1997) on information technology and competitive advantage. They investigated linkages between information technology (IT) and firm performance. They found that IT when complemented with human resources was significant to competitive advantage. The current study is similar to Weeks (2013) who studied the impact of

HRIS on employees of the major household appliance manufacturer in US. The study hypothesized that automated collection, storage and retrieve of information related to the human resource element in any large scale organization will help the organization to make more informed decisions concerning the hiring, the positioning, the utilization and the retention of its human resources that would lead competitive advantage.

This research presents some insights in the area of HRIS with special emphasis on the Kenyan situation and its contextual needs as developing. From resource flow theory it can be argued that HRIS components if well utilized organization can reap many benefits that provide economic value to firms. HRIS could provide organizations with high quality information that would enable the companies listed on the Nairobi Securities Exchange to make quality decisions in response to changes in the environment. The quality decisions will in turn lead to higher productivity and superior firm performance hence competitive advantage. The resource flow theory indicates that the HRIS components lead to competitive advantage. This is in line with studies by Kuhn, 1995; Mayfield *et al*, 2003; Casico, 2006; Obeidat, 2012. The results of the current study are thus consistent with HRM resource flow theory. The Human resource flow theory contributes to this study by providing HRIS applications. The results of this study contribute to this theory by confirming that there is a relationship between HRIS and competitive advantage on companies listed on Nairobi Securities Exchange.

## RECOMMENDATIONS FOR FURTHER RESEARCH

The researcher suggests that future research studies should be conducted using a different population and contexts. Future researchers could also consider introducing HRM practices as intervening variable and differentiation strategy as moderating variable. The data was collected from the HR managers only. This is likely to bring common method bias. Future researchers should incorporate multiples sources such as line managers, workers, customers, suppliers and other stake holders of the company. The study only used self-administered survey questionnaire. The researcher assumed that the responses would provide honestly and by a target group. The study confined itself to quantitative data collection methods and analysis. Future research could use both quantitative and qualitative data collection methods, which could probably obtain richer data and results.

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