



**THE MEDIATING ROLE OF HUMAN RESOURCE  
MANAGEMENT PRACTICES, ON THE RELATIONSHIP  
BETWEEN HUMAN RESOURCE INFORMATION SYSTEMS  
AND COMPETITIVE ADVANTAGE OF FIRMS LISTED ON  
THE NAIROBI SECURITIES EXCHANGE**

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**Abstract**

*Many organizations have deployed human resource information systems (HRIS) to achieve efficiency, effectiveness and competitive advantage. Both theoretical and empirical literature support that human resource information systems have influence on competitive advantage. However, this study introduced human resource management (HRM) practices as the mediating variable between Human resource information systems and competitive advantage. Further, the study determined the relationship between human resource information systems, human resource management practices and competitive advantage of firms listed on the Nairobi Securities Exchange. The study intended to establish the effect of different combinations of variables (Human Resource information system, Human resource management practices) on competitive advantage. The study was founded on universalistic and human resource flow theory. The review of the literature provided the conceptual model and hypotheses that guided the study. The study population consisted of 62 companies listed on the Nairobi Securities Exchange. The study used a cross-sectional survey design where 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 analysed using stepwise regression analysis. The statistical significance of the*

*hypothesized relationship was interpreted based on the coefficient of determination. The findings indicated that HRIS partially mediates on the relationship between HRIS and competitive advantage. The findings of this study should assist practitioners to develop policies in the areas of HRIS, HRM practices, and competitive advantage.*

*Keywords: HRIS, HRM Practices, Competitive Advantage, Nairobi Securities Exchange*

## **INTRODUCTION**

Many organizations have deployed information systems in order to achieve efficiency, effectiveness, quality and gaining competitive advantage. Similarly, Human Resource Information Systems (HRIS) are used by HR department for achieving efficiency, effectiveness and quality as well as competitive advantage (Kumar, 2012). The implementation of HRIS in organizations is very critical to the development of information technology. It is useful tool for achieving human resource objectives which are very crucial in an organization. Human Resource Information systems are software packages used in HR administration, salary administration, skill inventory, leave and absence recording, training and development, HR planning, performance appraisal, recruitment and career planning, and others HR activities (Mureithi, Gachunga & Burugu, 2014). Human resource information systems should add value to the objectives of the organization. HRIS should aim at decreasing costs, lessen time consumption and improve communication in an organization to create an environment that enables the HR department to make strategic decisions in an organization (Lengnick-Hall & Moritz, 2003). HRIS provide HR department with an opportunity that enable them to be strategic partners with top level management in an organization. Kumar (2012) affirm that HRIS enable the HR functions to be more efficient and to provide accurate information for decision-making.

The firms listed on the Nairobi Securities Exchange operate in a dynamic business environment that affects their competitive advantage. For them to achieve competitive advantage they need quality information to make quality decisions in response to changes in the environment. The firms need to integrate their HRIS with HRM practices in a way that would lead to competitive advantage. The way in which these firms treat their employees affect their performance. Sound HR practices embrace good governance that attract foreign investors and improve shareholders value hence competitive advantage.

The firms listed on the Nairobi Securities Exchange are appropriate for this study because they cover different sectors of the Kenyan economy. Their performance is also important for Kenyan gross national product and economic development. Furthermore, the firms listed on the Nairobi Securities Exchange provide financial reports to the public for their scrutiny.

For this reason, they are forced to engage in good corporate governance which further influences HRM practices. To achieve competitive advantage will depend on how the listed firms create a fit of the relationship between HRIS, HRM practices and competitive advantage which has not been studied.

Wickramaratna (2011) studied the role of HRIS in HR planning in private sector organizations in Sri Lanka. He found that HRIS decision-making function has a positive effect on the HR planning. Obeidat (2012) studied the relationship between HRIS functions and HRM functions in Jordanian banks. The study found that there is a relationship between HRIS functions and HRM functions that in turn had a positive influence on the organization's competitive advantage. Boateng (2007) studied the role of HRIS in strategic HRM in companies based in Finland. The empirical results of the study revealed that HRIS played a key role in strategic HR tasks. These studies provide evidence that HRIS has capabilities for shaping integration between HRM and IT (Hendrickson, 2003) that lead to a firm's competitive advantage.

Each of the above empirical studies focused on two or three variables at a time. None of them studied all the variables included in this study namely; HRIS, HRM practices and competitive advantage together. Yet, it is evident from literature that interactions of these variables are likely to have a greater influence on competitive advantage than the effect of HRIS on competitive advantage. The knowledge gap that this study addresses include the mediating role of HRM practices in the relationship between HRIS and competitive advantage.

This study, therefore, addressed these gaps by answering the question: What is the contribution of HRM practices to the relationship between HRIS and competitive advantage?

## **LITERATURE REVIEW**

This study was anchored on two theories resource flow and universalistic. Resource flow theory states that organization success depends on the interaction between the flow of information, materials, money and manpower (Beadles, 2005).

The study adopted the HR flow model because the theory 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 (Wickramaratna, 2011).

Universalistic theory is based on Hr best practices that are universally accepted. The most influential HR best practices set are associated with sixteen practices of Pfeffer (1994). He recently summarized these best practices into seven practices including employment security, selective hiring, self-management teams, provision of high pay contingent on the company

performance, extensive training, reduction of status differences communication and employee involvement. Huselid (1995) noted that a positive relationship between better HRM practices and the firm's competitive advantage. Kidombo (2007) established a significant and positive relationship between HRM practices and performance. This theory is appropriate in this study because it provided HRM practices that lead to competitive advantage.

### **Empirical studies and knowledge gaps**

HRIS is one of the competencies that are critical to HR professionals (BrockBank & Ulrich, 2003). HRIS enables HR professionals to effectively access and disseminate information (Gardner, Wright & Moynihan, 2003). Effective HRM is vital as it provides well-qualified employees at all times in order to meet the market demands. HRIS and HRM practices have effects on each other. On the other hand, HRM practices affect implementation of the HRIS because the success of HRIS projects is highly dependent upon the end-users behaviour. HRM practices have the potential to provide support to the targeted employees of newly introduced software applications in their proper utilization. HR professionals are provided with HRM practices that enable them adopt technologies that allow the re-engineering of the HR functions (Bondarou & Ruel, 2008).

On the other side, Lawler and Mohrman, (2003) argue that with the growth of HRIS, most of the administrative aspects of HRM can be accomplished through HRIS solutions. HRIS frees up HR managers from some of their routines task, which provide greater opportunity for HR managers to become a strategic partner hence competitive advantage (Ulrich, 1997). The technological advances are being driven primarily by strong demands from HR professionals for enhancement in speed, effectiveness and cost containment. Advances in HRIS enable companies to overcome many of the challenges of HRM, such as attracting, retaining, and motivating employees, meeting demands for a more strategic HR function managing the human element of technological change in the future (Gupta, 2014).

Beulen (2009) examined the contributions of a global service provider's HRIS to staff retention in emerging markets from 16 semi-structured expert interviews with Accenture HR executives and managers in Argentina, Brazil, China, India, Latvia and Slovakia. He found that HRIS contribute positively to staff retention for global IT service providers in emerging markets. This is especially important in minimizing turnover that supports allocation of employees to international engagement, including scheduling and training.

Nura and Osman (2013) studied the gauging effect of performance management and technology based HRM on employee retention in the perspectives of academic institutions in Sokoto state Nigeria. They found that there is a significant correlation between employee

retention and performance management system in every administrative processes in higher education systems. This is supported by Tan and Teo (2000) and Abukhazam and Lee (2010) who found that HRIS and its expediency have been proven to have a significant relationship with employee retention because HRIS holds the nature of reducing time, cost and energy incurred in human resources processes occupied in academic administrative activities.

Various scholars such as Hall and Moritz (2003) were convinced that the use of communication and information HRIS tool for HR practices especially for development and welfare will make strategic decision-making efficient and effective. In addition, it leads to fewer incidences of conflicts between employers and employees. Similarly, HRIS is significantly related to performance management system among academics in higher education's institutions in Sokoto State. This is may be so because the application of HRIS in the education institutions guarantees a desired output behaviour of staff such as less conflicts and complaints is reduced to barest minimum. This is supported by views by Nura and Osman (2013) and Maatman (2006). This study used E-HRM as mediating variable in the relationship between employee retention and performance management. The current study used HRM practices as the mediating variable between HRIS and competitive advantage.

Minbaeva (2005) empirically examined the effect of HRM practices on knowledge transfer within multinational corporations. Results of the analysis indicated that there exist two groups of HRM practices and conducive knowledge transfer. The simultaneous effect of the first group of HRM practices consisting of staffing, training, promotion, compensation and performance appraisal on the degree of knowledge transfer was found to be positive and substantial. Based on the above findings the two relationships can be joined to propose that HRIS influences HRM practices and HRM Practices influences competitive advantage, hence HRM practices mediates the relationship between HRM practices and competitive advantage.

## RESEARCH METHODOLOGY

A descriptive research design was adopted to determine the mediating role of HRIS on the relationship between HRM practices on competitive advantage of companies listed on Nairobi Securities Exchange. Cross-sectional approach was the most appropriate because data was at one point in time collected across 62 firms. 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.

A closed ended questionnaire was used to collect primary data from the companies listed on NSE. The questionnaires 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 was designed for the statement measuring HRM practices adapted from Kidombo (2007) on a scale of 1-5. Part C asked the respondents to rate the competitive advantage where firm profitability adapted from (Busienei, 2013).

The study used both descriptive (mean, percentages and measures of dispersion) and inferential statistics (regression analysis). As the study consisted of a combination of independent, mediating, dependent variables, it was apparent that different types of regression analysis were required to test the hypotheses. Stepwise regression (for Ha1) were used to establish the nature and magnitude of the relationship between variables and to test hypothesized relationship in Table 3.2. Mean scores, standard deviation and coefficient of variation were computed for Likert type questions. Data is presented in the form of tables.

## RESEARCH FINDINGS

Data analysis for Cronbach alpha coefficient, tests of Normality prior to stepwise regression analysis, were done to test whether the data was appropriate for regression analysis. Stepwise regression was done to examine the association amongst the study variables, were done.

A cronbalch alpha coefficient by Nunnally (1978) was used to determine the reliability of the instrument. As a rule of thumb the cut-off point value 0.7 was used. Results of reliability are presented in Table 1.

Table 1: Summary of Cronbach's Alpha Reliability Coefficients for Major Variables of the Study

Variable	Number of items	Alpha coefficients	Remarks
HRIS	5	0.815	Reliable
HRM practices	7	0.865	Reliable
Competitive advantage	3	0.828	Reliable

Table 1 indicate that HRIS has alpha coefficients of 0.815, HRM practices, 0.865 and competitive advantage 0.828 which were greater than the cut-off point value 0.7. This means that the alpha coefficients of all the variable were reliable.

The main test for the assessment of normality used in this study was the Shapiro-Wilki test. If the Shapiro-Wilki test is less than 0.5 then the data significantly deviates from a normal distribution. The normality was also tested using the Q-Q plots. If Q-Q plots data lie close to the straight line, the data mean normal distribution. The Q-Q plots of HRM practices, HRIS and

competitive advantage shows the normality distribution. The data of the Q-Q plots lie close to the straight line and therefore there was normal distribution.

Table 2: Results of the Tests of Normality

Variables	Shapiro-Wilki		
	Statistic	Df	Sig.
HRIS	.987	30	.964
HRM practices	.967	30	.468
Competitive Advantage	.962	30	.350

The Shapiro-wilki results for HRIS, HRM practices and competitive advantage were all greater than 0.05 and hence the assumption of normality was not violated. If Q-Q plots data lie close to the straight line, the data set is interpreted to mean normal distribution. However if the points significantly depart from the straight line, the distribution is assumed to be non-normal.

Figure 1: Human Resource Information system

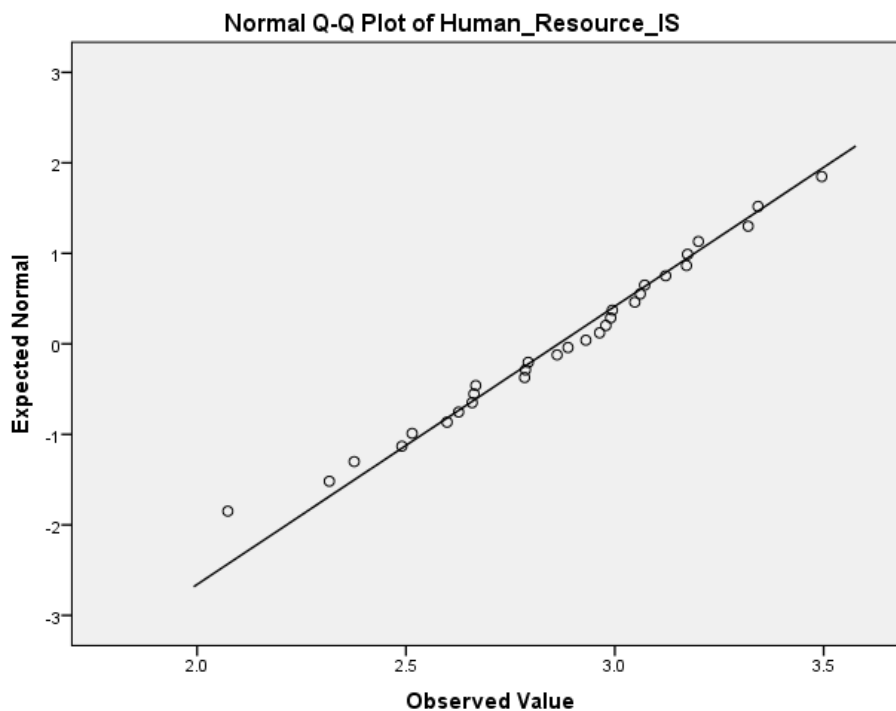


Figure 2: Human Resource Management Practices

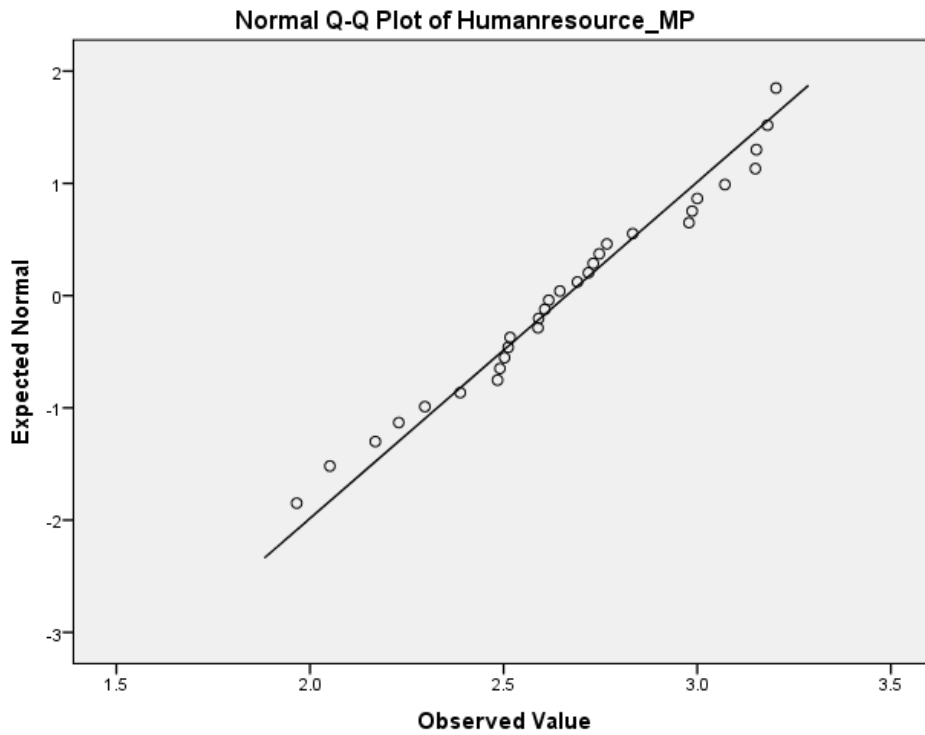
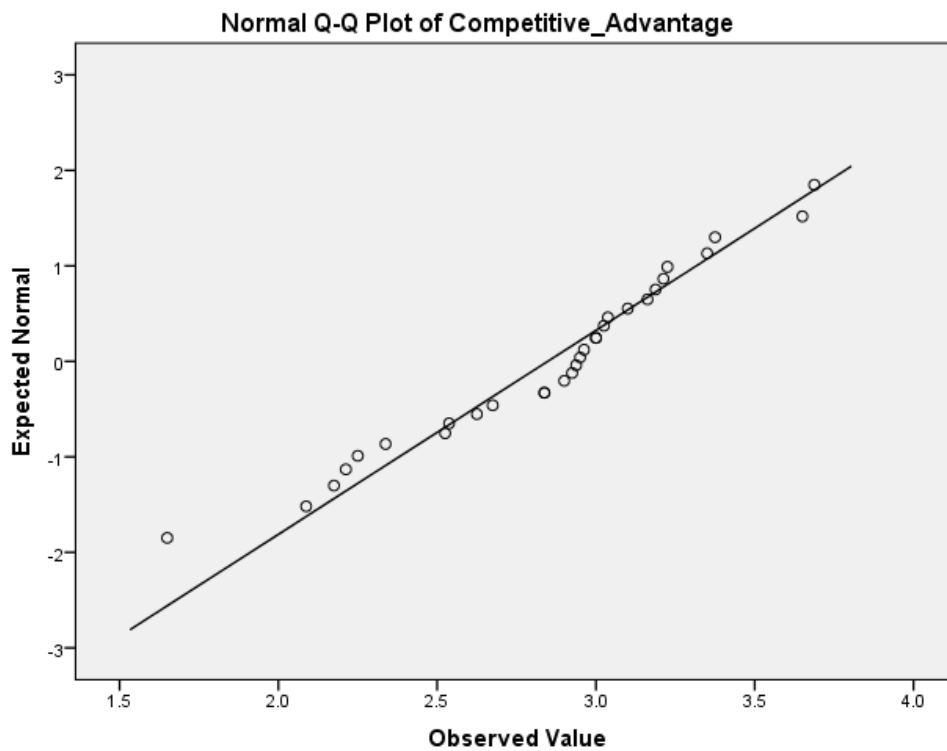


Figure 3: Competitive Advantage





The Q-Q plots representing the distribution of data as figure 1, 2 and 3 representing HRIS, HRM practices and competitive advantage, respectively, lie approximately along the straight line indicating a normal distribution of the data.

Inferential statistics (stepwise regression analysis) was used to analyse the data. Stepwise regression analysis for ( $H_{a1}$ ), was used to establish the nature and magnitude of the relationship between variables and to test hypothesized relationship.

### **Mediating Role of HRM Practices in the Relationship between HRIS and Competitive Advantage**

To test for the mediating effect, stepwise regression analysis was performed. The objective was to determine whether HRM practices mediate 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. HRM practices were measured through internal career opportunities, retention, training and development, performance appraisal, reward strategy, employee relations and overall human resource practices. Competitive advantage was measured into 3 concepts which included market share, public image and profitability. Composite indices were computed for each of the construct of HRIS and competitive advantage. Based on the research objective, the following hypothesis was formulated:

$H_{a1}$ : Human resource management practices mediate the relationship between HRIS and competitive advantage.

The Kenny (2014) approach in testing for mediation was employed in testing this hypothesis. This technique involved the following four-step stepwise regression analysis:

Step one: Competitive advantage is regressed on HRIS. Significant  $R^2$  and beta coefficient provide a necessary, though not sufficient, condition for confirmation of mediation. The process moves to step two or otherwise terminates if the results are not significant.

Step two: Human resource management practices are regressed on HRIS. The statistical procedures and interpretation applied in step one applies here. In other words, the process only moves to step three if the effect of HRM practices on HRIS is significant. Otherwise it is terminated and a conclusion made that there is no mediation.

Step Three: Competitive advantage is regressed on HRM practices. The same interpretational procedures and decision rule are applied here. Significant effect of HRM practices on competitive advantage is a necessary proceeding to step four otherwise it is inferred that there is no mediation and process is halted.

Step four: Competitive advantage is regressed on both HRIS and HRM practices in the same regression model. Mediation is confirmed if the effect of HRIS is not significant in the presence of HRM practices.

Complete mediation is achieved when, in step four, the effect of independent variable on the dependent variable is not only non-significant but is zero. Partial mediation results in a situation where, in step four, the effect of the independent variable on the dependent variable is greater than zero but is still non-significant. The results are presented in Table 3(a) for step one, 3(b) for step two, 3(c) for step three and 3(d) for step four.

Table 3(a): 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		
<b>ANOVA<sup>a</sup></b>						
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			
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		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 3 (a) show that the influence of HRIS on competitive advantage is significant (R square=.345, F=14.770, p<0.05) with 34.5 percent of the variation in competitive advantage being significantly explained by the variations in HRIS. The F ratio shows that the regression of HRIS on competitive advantage is significant at p<0.05, which is evidence of the goodness of fit of the regression model. The beta was also significant ( $\beta=.845, t=3.84, p<0.05$ ). The first mediation condition which states that the independent variable should be significantly related to the dependent variable in the absence of the mediating variable is thus satisfied.

Table 3(b): Regression Results Effect of HRIS on HRM Practices

<b>Model Summary</b>						
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate	
1	.614 <sup>a</sup>	.377	.354		.26811	
<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.216	1	1.216	16.915*	.000 <sup>b</sup>
	Residual	2.013	28	.072		
	Total	3.229	29			
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized		Standardized	T	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	.860	.441		1.949	.061
	HRIS	.629	.153	.614	4.113*	.000

a. Dependent Variable: HRM practices

b. Predictors: (Constant), HRIS

c. \*P<0.05

The second step is the regressions results from step Table 3(b). The results indicate that the influence of HRIS on HRM practices was significant (R square= 0.377, F=16.915, p<0.05) with 37.7 percent of the variation in HRM practices being significantly explained by the variations in HRIS. The F ratio shows that the regression of HRIS on HRM practices is significant at p<0.05, which is evidence of the goodness of fit of the regression model. The beta was significant ( $\beta=.629$ ,  $t=4.113$ , p<0.05), thus satisfying the second condition, which states that the independent variables should be significantly related to the mediator variable.

Table 3(c): Regression Results for the Effect of HRM Practices  
on Competitive Advantage

<b>Model Summary</b>					
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate
1	.520 <sup>a</sup>	.270	.247		1.36136

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.257	1	21.257	11.470*	.002 <sup>b</sup>
	Residual	57.453	31	1.853		
	Total	78.710	32			

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
1	(Constant)	4.091	2.117		1.932	.063
	HRM practices	2.655	.784	.520	3.387*	.002

a. Dependent Variable: Competitive advantage

b. Predictors: (Constant), HRM practices

c. \*P<0.05

The regression output from the third step as presented in Table 3(c) indicates that the influence of HRM practices on competitive advantage was significant (R square=.270, F=11.470, p<0.05) with 27 percent of the variation in competitive advantage being significantly explained by the variations in HRM practices. The F ratio shows that the regression of HRM practices on competitive advantage is significant at p<0.05, which is evidence of the goodness of fit of the regression model. The beta was significant ( $\beta=2.655$ ,  $t=3.387$ ,  $p<0.05$ ), thus satisfying the third condition which states that the mediator variable should be significantly related to the dependent variable.

Table 3(d): Regression Results for Effect of HRIS and HRM practices on Competitive Advantage

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625 <sup>a</sup>	.390	.345	.37882

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.479	2	1.239	8.636*	.001 <sup>b</sup>
	Residual	3.875	27	.144		
	Total	6.353	29			

Coefficients <sup>a</sup>						
Model		Unstandardized		Standardized	T	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
	(Constant)	.103	.664		.156	.877
1	HRM practices	.376	.267	.268	1.408	.171
	HRIS	.609	.274	.423	2.223*	.035

a. Dependent Variable: Competitive Advantage

b. Predictors: (Constant), HRIS, HRM practices

c. \*P<0.05

In step four the influence of independent variable (HRIS) on dependent variable (competitive advantage) was significant in the presence of the mediating variable, HRM practices ( $R^2=.390$ ,  $F=8.636$ ,  $p<0.05$ ). The F ratio shows that regression of HRIS and HRM practices on competitive advantage is significant. The beta was also statistically significant ( $\beta=.609$ ,  $t=2.223$ ,  $p<0.05$ ). These results did not satisfied the fourth condition for partial mediation which states that the effect of the independent variable on the dependent variable is greater than zero but is still non-significant. There is partial mediation of human resource management practices on the relationship between HRIS and competitive advantage.

The mediation test thus satisfied all three conditions of mediation apart from the fourth condition for full mediation that should be met for a mediation relationship to be considered and therefore it can be concluded that HRM practices partially mediate on the relationship between HRIS and competitive advantage. The hypothesis that HRM practices mediate the relationship between HRIS and competitive advantage was partially supported.

## DISCUSSION OF FINDINGS

The objective was to determine the mediating effect of HRM practices on the relationship between HRIS and competitive advantage. The Kenny (2014) stepwise regression analysis in testing for mediation was employed for the purpose of the test. The test indicated in the findings did not satisfy the fourth condition that was to be met for a full mediation relationship to be considered and therefore it was concluded that HRM practices partially mediate the influence of HRM practices on competitive advantage.

This study is in line with several studies that concur on the positive relationship between HRIS and competitive advantage (Huber, 1990; Broderick & Boudreau, 1992; Powell & Dent-Micallef, 1997; Hendrickson, 2003). Furthermore, the study is also consistent with empirical and

theoretical evidence that yields fairly conclusive findings that HRM practices have influence on competitive advantage (Wright & McMahan, 1992; Coff, 1994; Berker & Huselid, 1997; Pfeifer, 1999). It is also similar to the study by Gardner, Wright & Moynihan (2003) that concluded that HRIS and HRM practices affect each other. At the same time it agrees with the conclusions of Obeidat (2012) that HRIS influences profitability. On the other hand, HRM practices also influence profitability (Purcell and Kinnie, 2007). Therefore it can be inferred that HRM practices mediates the relationship between HRIS and competitive advantage.

The finding of this study is consistent with universalistic theory that suggests that HRM practices lead to competitive advantage. This is in line with Pfeffer (1998) and Pfeffer & Veiga (1999) who agreed that universalistic theory lead to competitive advantage. The finding of the current study is also consistent with Human resource flow theory that HRIS components lead to competitive advantage (Kuhn, 1995; Mayfield et al. 2003; Casico, 2006; Obeidat, 2012). This indicates that HRIS components when aligned with HRM practices lead to competitive advantage.

## **CONCLUSION**

The study supports the mediating effect of HRM practices in the relationship between HRIS and competitive advantage. The resource flow theory of HRIS consists of three subsystems, which include the input, HRIS databases and output subsystems. 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.

HRM practices used in this study were drawn from the universalistic theory. The study confirmed that universalistic HRM practices lead to competitive advantage (Pfeffer, 1999). Pfeffer (1998) and Kidombo, (2007) proposed seven HR practices that can influence the firm's competitive advantage. They include seven HRM practices as internal career opportunities, training and development, retention strategies, performance appraisal, reward strategies and employee relations. The study indicated HRM practices partially mediate in the relationship between HRIS and competitive advantage. The seven HRM practices adopted by this study contribute to competitive advantage of companies listed on Nairobi Securities Exchange.

## **SCOPE FOR FURTHER RESEARCH**

Future researchers could also consider introducing different variables other than HRIS, HRM practices and competitive advantage in testing for mediation. 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. Future research could use both quantitative and qualitative data collection methods, which could probably obtain richer data and results.

## REFERENCES

- Abukhzam, M., & Lee, A. (2010). Workforce attitude on technology adoption and diffusion school of the built environment. Salford: University of Salford.
- Beadles, N., Lowery, C. M. & Johns, K. (2005). The impact of human resource information systems: An exploratory study in the public sector. *Communications of the IIMA*, 5(4), 39-46.
- Becker, B. E., Huselid, M. A., Becker, B. E. & Huselid, M. A. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. In *Research in Personnel and Human Resource Management*, (16), 53-101.
- Beulen, E. (2009). The contribution of a global service provider's Human Resources Information System (HRIS) to staff retention in emerging markets: Comparing issues and implications in six developing countries. *Information Technology and People*, 22(3), 270-288.
- Boateng, A. A. (2007). The role of Human Resource Information Systems (HRIS) in Strategic Human Resource Management (SHRM). Master of Science Thesis in Accounting, Swedish School of Economics and Business Administration, Palovartijantie.
- Bondarouk, T. V. & Ruël, H. J. (2008). HRM systems for successful information technology implementation: evidence from three case studies. *European Management Journal*, 26(3), 153-165.
- Broderick, R. & Boudreau, J. W. (1992). Human resource management, information technology, and the competitive edge. *The Executive*, 6(2), 7-17.
- Busienei, J. R. (2013). Business strategy, organizational structure, human resource strategic orientation and performance of large private manufacturing firms in Kenya. (Unpublished PhD Thesis, University of Nairobi).
- Cascio, W. F. (2006). 10 Global performance management systems. *Handbook of research in international human resource management*. Edward Elgar publishing limited, 176.
- Gupta, A. K. (2014). A study of HRM is the backbone of organization development. *International Journal of Research in Engineering Technology and Management* 02-02-318.
- Hendrickson, A. R. (2003). Human resource information systems: Backbone technology of contemporary human resources. *Journal of Labor Research*, 24(3), 382-394.
- Huber, G. P. (1990). Organizational learning: The contributing processes and the literatures. *Organization science*, 2(1), 88-115.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38(3), 635-672.
- Kidombo, H. J. (2007). Human Resource Strategic Orientation, Organizational Commitment and Firm Performance in Large Private Manufacturing Firms in Kenya (Unpublished PhD Thesis, University of Nairobi).
- Kumar, R. (2012). Human resource information system: An innovative strategy for human resource management: *Gianjyotie Journal*, 1 (2).
- Lengnick-Hall, M. L. & Moritz, S. (2003). The impact of e-HR on the human resource management function. *Journal of Labor Research*, 24(3), 365-379
- Mayfield, M., Mayfield, J. & Lunce, S. (2003). Human resource information systems: A review and model development. *Advances in Competitiveness Research*, 11(1), 139-151. Retrieved from <http://search.proquest.com/docview/211408321?accountid=45049>
- Minbaeva, D. B. (2005). HRM practices and MNC knowledge transfer. *Personnel Review*, 34, 125–144.
- Muriithi, J. G., Gachunga, H. & Mburugu, C. K. (2014). Effects of Human Resource Information Systems on Human Resource Management Practices and Firm Performance in Listed Commercial Banks at Nairobi Securities Exchange. *European Journal of Business and Management*, 6(29), 47-55.

Nunnally, J. (1978). Psychometric methods. *Journal of Management Research*, 4(4), 192-211.

Nura, A. A. & Osman, N. H. (2013). Gauging the effect of performance management and technology based human resource management on employee retention: The perspective of academics in higher educational institutions in Sokoto state Nigeria. *Asian Social Science*, 9(15), 295.

Obeidat, B. Y. (2012). The relationship between human resource information system (HRIS) functions and human resource management (HRM) functionalities. *Macrothink*, 4 (4).

Pfeffer, J. (1998). Seven practices of successful organizations. *California Management Review*, 40(2), 96-124. Retrieved from <http://search.proquest.com/docview/216128402?accountid=45049>.

Pfeffer, J., & Veiga, J. F. (1999). Putting people first for organizational success. *The Academy of Management Executive*, 13(2), 37-48.

Powell, T. C. & Dent-Micallef, A. (1997). Information technology as competitive advantage: The role of human, business, and technology resources. *Strategic management journal*, 18(5), 375-405.

Tan, M. & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the AIS*, 1(1es), 5.

Ulrich, D. (1997). Measuring human resources: an overview of practice and a prescription for results. *Human Resource Management*, 36(3), 303-320.

Wickramaratna, U. C. (2011). The role of human resource information systems in human resource planning in private sector organizations in Sri Lanka. (Thesis in Information Systems, University of Colombo).

Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management*, 18(2), 295-320.