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EFFECT OF RECRUITMENT AND SELECTION SUBSYSTEM OF HUMAN RESOURCE INFORMATION SYSTEM ON FIRM PERFORMANCE OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE IN KENYA

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Abstract: **With the advent of the twenty-first century came the ever increasing effect of globalization and technology especially in recruitment and selection process in an organization. Therefore, there is a tremendous surge in the implementation of new technology and organizations have amplified the use of information systems in various functions and departments for organizational competitive advantage and success. This study sought to establish whether there is a significant effect of recruitment and selection subsystem of human resource information system on firm performance of companies listed at the Nairobi securities exchange in Kenya. With the following dependent variable constraints; Job application tracking, Job offers refused analysis, Administration of tests for selection and Recruitment while the performance of a firm was looked at from the financial perspective and specifically using the return on assets ratios. The study established that recruitment and selection subsystem of human resource information system selects right persons to be trained at the right time, thus the study concludes that recruitment and selection subsystem of human resource information system had a positive effect on the performance of firms listed at the NSE. The study recommends implementation of recruitment and selection subsystem of an HRIS. Thus study further recommends that recruitment and selection subsystem of human resource information system should be enhanced since it affects firm's performance positively.**

Keywords: **Recruitment and Selection subsystem, Firm Performance, Nairobi securities exchange.**

1. INTRODUCTION

1.1 Background of the Study

Information Technology has revolutionalized the mode of conducting business all over the world. It is applied in virtually every sector of the world economy. It is used in healthcare, agriculture, manufacturing, service industries to mention but a few. There is always a convergence between IT and any business or industry. The use of Information Technology in business operations brings efficiency and effectiveness which translates to cost cutting and profitability in any business domain. The initial cost of installing Information systems may be high and prohibitive, but in the long haul, the benefits are tremendous and priceless. Previously, organizations have deployed management information systems in all other functional departments of an organization but relegating human resources operations to the back burner. This is slowly changing and human resource management practices can now be automated from the hiring stage to the final stage of separation. Firms invest in information systems for the business objectives such as achieving operational excellence

(productivity, efficiency, agility), developing new products and services, attaining customer intimacy and service, improving decision making, achieving competitive advantage and ensuring survival (Laudon & Laudon, 2009).

According to Muma (2018) recruitment process is any process for which an organisation seeks applicants and attracts potential employees while selection refers to the process by which an organisation identifies those applicants with the knowledge, skills, abilities, and other characteristics that will help it achieve its goals. The overall aim of the recruitment and selection process is to obtain at minimum cost the number and quality of employees required to satisfy the human resource needs of the organisation (Armstrong, 2009). Hiring capable people is an attractive point of departure in the process; but building and sustaining a committed workforce is more likely to be facilitated by the employment of a range of sophisticated human resource management infrastructures (Chew, 2005). Employers try to recruit and select the right candidates. At the same time, job seekers gather information about organisations and current jobs offers.

The effect of recruitment and selection subsystem of human resource information system include: reducing the cost, speed of filling job vacancies, psychological contract fulfillment, Satisfaction and retention rates, Quality and quantity of applicants and the diversity of application. For example, recruitment and selection subsystem of human resource information system can decrease cycle time and increase the efficiency of the process by allowing organizations to spend less time gathering and sorting data. Recruitment and selection subsystem of human resource information system quickly generates information since the system gives and updates information to the employee about the job vacancies. Besides that, this system also makes selection process easier because the employers and candidates can save a lot of time to describe the vacancies and their requirements through internet. Using HRIS in recruitment and selection will indirectly enhance the productivity in organization because the administration can easily update all the information using this system (Gueutal & Stone, 2005).

1.1.1 Nairobi Securities Exchange

In Kenya, dealing in shares and stocks started in the 1920s when the country was still a British colony. However, the market was not formal as there did not exist any rules and regulations to govern stock broking activities. Trading took place on a 'gentleman's agreement.' Standard commissions were charged with clients being obligated to honor their contractual commitments of making good delivery and settling relevant costs. At that time, stock broking was a sideline business conducted by accountants, auctioneers, estate agents and lawyers who met to exchange prices over a cup of coffee. Because these firms were engaged in other areas of specialization, the need for association did not arise. In July of 1953 and the London Stock Exchange accepted to recognize the setting up of the Nairobi Stock Exchange as an overseas stock exchange. In 1954 the Nairobi Stock Exchange was then constituted as a voluntary association of stockbrokers registered under the Societies Act. (Source: Nairobi Securities Exchange Website).

Over the years, the Nairobi bourse has grown in leaps and bounds. In July 2011, the Nairobi Stock Exchange Limited changed its name to the Nairobi Securities Exchange Limited. The change of name reflected the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. The bourse has sixty listed companies with an additional Ugandan company which cross listed in December, 2012. Three companies at the NSE have been suspended due to failure to meet various requisite conditions for listing and remaining at the NSE as stipulated by the Capital Markets Authority (CMA). The three companies include; Cooper Motor Corporation Holdings, Hutchings Beimer and A. Baumann (Source: Nairobi Securities Exchange Website). These three companies were not considered in this study since they do not reflect the true picture on the ground due to the fact that they have flouted the rules as set by the Capital Markets Authority.

Umeme limited company, a Ugandan power distribution company became the latest entrant at the Nairobi Securities Exchange, being the first international company to cross list shares at the NSE in December, 14th, 2012. This company was not included in the study because it is very new in the market and its secondary data in form of published statements of accounts is not yet available at the CMA. The requirements for listing at the Nairobi Securities Exchange according to the Capital Markets Act, Cap 485A are stringent and each listed company must adhere to them so that it can remain at the bourse. They include: a minimum authorized issued and fully paid up share capital of Kshs. 50 million and net assets immediately before the public offering of shares should not be less than Kshs. 100 million. These are companies which are doing extremely very well financially and they have to do everything right to sustain this kind of financial health.

In December, 2012, the NSE was ranked as the third best performing bourse in the world. The market's all-share index, NSE All Share Index, rose by more than a fifth in the first half of the year, making the Nairobi bourse the third best performing stock market worldwide after the Venezuela and Egypt exchanges, according to *Bloomberg* – a global markets data service. This goes a long way to stress the point that the listed companies at the NSE are very competitive globally and the practices that they embrace must be working towards their effectiveness and ultimately impressive performance. Technology adoption in the management of Recruitment and selection subsystem of human resource information system is one of the strategies that this study sought to investigate whether it has any significant effect in the overall performance of a firm. Human Resource Information Systems are very expensive and the listed companies` directors must convince the various stakeholders whether the Information Systems will bring returns to the company in the long run.

1.2 Statement of the Problem

The last decade has witnessed growth in the ICT ecosystem in Kenya. According to a survey conducted by International Data Corporation (IDC) towards the end of 2011, going by various Key Performance Indicators and the survey's market sizing for Kenyan ICT, the sector performed well with good growth in value, usage and access across most sectors between 2010 and 2011 with a shift to services as more infrastructure is put in place (The Global Information Technology Report, 2010–2011). The report goes on to say that, the government initiatives including infrastructure development, regulatory reforms (licencing frameworks), investment in public access centres, e-government projects, content creation, device subsidies, have all had a very positive effect in transforming the market, stimulating investment, ICT uptake and bolstering confidence in the overall ICT market. The industry has developed tremendously across all the sectors of the economy. The survey concluded that Kenya has surpassed Rwanda and South Africa in most aspects of ICT. This is a very encouraging fete bearing in mind that the two countries have been considered as the ICT powerhouses in the continent for a long time (The Global Information Technology Report, 2010–2011).

Technology adoption is linked with higher business outcomes (CedarCrestone, 2012). This development in ICT in Kenya needs to be taken up fully so that Kenya can benchmark with the best in the world. Best practices in human resource management should not be overlooked while embracing technology. This has not been happening in developing countries including Kenya. The use of human resource information systems should be taken up so that developing countries can be efficient in service delivery, effective and ultimately competitive globally. Now that Kenya is doing very well in terms of ICT infrastructure mainstreaming, organizations should leverage on this development and computerize all their operations.

A lot of literature has predominantly focused on the impact of HRIS in organizations (Alca´zar, Ferna´ndez & Gardey, 2005; Browning, Edgar, Gray & Garrett, 2009). It takes HRIS in organizations for granted with relatively little systematic attention being paid to the issues that surround their adoption. Yet, adopting HRIS can be challenging as it can be costly and it can take a long time before espoused pre-adoption benefits become available after HRISs are fully adopted. To date, HRIS adoption remains under-researched both in public and private sectors, and therefore, addressing it can provide a valuable contribution to both research and practice (Blount & Castleman 2009; Henriksen & Mahnke 2005). Also, research has shown that most organizations still appear to use technology merely to automate routine administrative tasks (CedarCrestone, 2010). This does not help leverage on the huge benefits of HRIS. If properly used, HRIS can transform how business is carried out in organizations and improve effectiveness and ultimately profitability of a firm.

In their survey on e-readiness of higher education institutions in Kenya, Kashorda, Waema, Omosa and Kyalo, in 2007 concluded that, whereas businesses sector must continuously grow organically to survive, state corporations must constantly adapt to the changes in the marketplace and diversify to meet the changing national demands. This means that the requirements of the human resource management information systems will also change and utilize the power of technology to meet the ongoing needs of the organization. The human resource department must be strategic and join other departments in the organization in embracing technology in the HR practices. Waema (2009, studied the implementation of the human resource management systems in local authorities and indicated that adoption of appropriate technology would enhance the effectiveness of such systems.

Firm performance, is a construct commonly used as the final dependent variable (Richard, Devinney, Yip, & Johnson, 2009) in various fields (Cho & Pucick, 2005; Sila & Ebrahimpuor, 2005). Many studies measure firm performance with a single indicator and represent this concept as unidimensional, even while admitting its multidimensionality (Glick, Washburn, & Miller, 2005). If several dimensions exist, a researcher should choose the dimensions most relevant to his or

her research and judge the outcomes of this choice (Richard, Devinney, Yip, & Johnson, 2009). This study measured firm performance using return on assets and profitability. Previous studies have looked at the use of human resource information systems in terms of enhancing efficiency and effectiveness. This study investigated firm performance in the context of changes in return on assets and profitability. Listed companies at the Nairobi Securities Exchange (NSE) are very competitive and their Human resource managers should be at the fore front in ensuring that HRISs are adopted and used optimally in their organizations so that they can leverage on their benefits. However, there is scanty research done in Kenya, to establish effect of recruitment and selection subsystem of human resource information system on firm performance of companies listed at the Nairobi securities exchange in Kenya. The objective of this research was to investigate how the use of recruitment and selection subsystem of human resource information system affect firm performance of companies listed at the Nairobi securities exchange in Kenya.

1.3 Objectives of the study

The purpose of this study was to determine the effect of recruitment and selection subsystem of an HRIS on firm performance of companies listed at the NSE in Kenya

1.4 Research Question

The study sought information that addressed and answered the following question:

What is the effect of recruitment and selection subsystem of an HRIS on firm performance at the NSE listed companies?

2. LITERATURE REVIEW

2.1 Introduction

This chapter captures various models and theories used in the study of recruitment and selection subsystem of an HRIS, conceptual framework, empirical reviews, critique of relevant literature and research gaps.

2.2 Theoretical Review

Theoretical framework may be defined as the interrelated ideas collection or a general set of assumptions based on theories or a reasoned set of prepositions, which are derived from and are supported by data or evidence and accounts for explains phenomena (Turner, 2018). The study is hinged on Resource-Flow HRIS model and Resource-Based Theory

2.3 Conceptual Framework

Mugenda (2008) defines a conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. It is the schematic representation of the relationship between the dependent and independent variables and concerns the connections which exist between recruitment and selection subsystem of an HRIS and firm performance

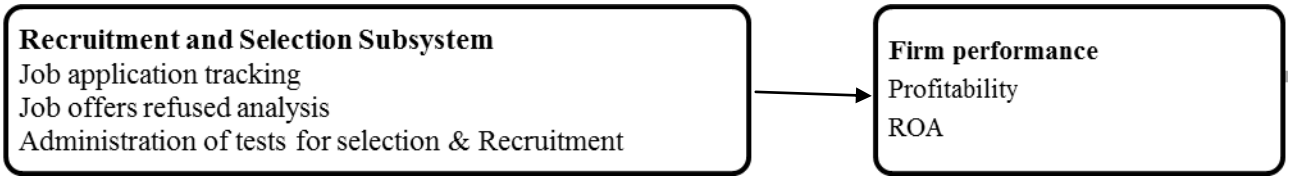

Figure 2. 1: Conceptual framework

Empirical Review

2.4 Recruitment and Selection Subsystem and Firm Performance

Web-based technology used by e-recruiting helps organizations attract a stronger and more diverse applicant pool (Richard & Gueutal 2011). Recruitment and selection process begins when the need to fill a position is identified and it ends with the receipt of résumés and completed application forms. The result is a pool of qualified job seekers from which the individual best matching the job requirements can be selected. Selection is the process of choosing individuals with the relevant qualifications to fill existing or projected openings. Data and information about applicants regarding current

employees, whether for a transfer or promotion, or outside candidates for the first time position with the firm are collected and evaluated. Organizational recruitment efforts have increasingly relied on computer technology. Employers can electronically advertise jobs, scan and store resumes, conduct test, and contact qualified applicants by using the power of the Internet to match people to jobs.

Many scholars have studied recruitment and selection subsystem of an HRIS and firm performance and found the following; A study by Recruitsoft/iLogos Research of 50 *Fortune*500 companies revealed that the average company cut about six days off its hiring cycle of 43 days by posting jobs on-line instead of in newspapers, another four days by taking on-line applications instead of paper ones, and more than a week by screening and processing applications electronically. With efficiency gains like these, it's no wonder that 90% of large U.S. companies are already recruiting via the Internet. Indeed, the only surprise may be that 10% are not.

Khan (2011), in his study on E-recruitment: a new way out for success found out that e-recruitment is a key for organizations to maintain competitive efficiency level and high productivity in Pakistan.

In a study carried out by the Society for Human Resource Management in 2007, titled: Advances in e-recruiting: Leveraging the dot-jobs domain, It was found out that the dot-jobs domain provides job seekers with a simple, fast and consistent destination. This low-cost resource is a valuable tool that can positively affect the effectiveness of an organization's recruiting efforts. Throughout this study, there were significant differences between organizations with and without a dot-jobs domain. Overall, the survey results demonstrated that organizations with a dot-jobs domain had more effective recruiting practices across a range of areas.

Marić and Ilić (2012) reached to the same conclusion as previous researchers and concluded that the use of Information Technology in human resources contributes to cost reduction and higher speed of processing applications. The choice to move to an e-recruiting model is driven by several business objectives, including the need to: Improve recruiting efficiency and reduce costs. According to research done by Richard and Gueutal in 2011 approximately 100 job-seeking college students were asked to evaluate two unfamiliar firms based on their web presence. The students saw the firm with a less technologically advanced and dynamic recruiting website as a less attractive employer, and as failing to be a leader in its industry (even though it was). The students said that the website communicated a lack of innovation and quality within the firm. Electronic recruiting can cut cycle times by 25 percent, and can reduce recruitment costs by more than $8,000 per hire—a 95-percent reduction. It also allows organizations to conveniently reach applicants across the country or around the globe. (Richard & Gueutal, 2011).

It also increases the objectiveness of, and standardize, recruiting practices and finally, increase applicant convenience. Potential applicants who take advantage of web-based support for the recruitment cycle find out about the company, its culture and opportunities online. By making this process more convenient, organizations reach out to those who may not be actively looking for other opportunities, but who may discover a position and choose to apply because of the ease of submitting an application. Organizations are rapidly adopting e-recruiting tools. A survey by CedarCrestone, 2010, found that nearly 75 percent of organizations are using technology to support recruitment, and this number is expected to grow to nearly 85 percent within the next year

Approaches to implementing e-recruiting vary, but include the use of a corporate recruiting website; general online job boards, such as Monster, HotJobs and CareerBuilder; industry-specific job boards, such as dice.com, marketingjobs.com; and regional job boards, such as brightermonday.com to enhance recruiting efforts. A recent study by SHRM found that although employee referrals are still the source of the highest quality applicants, four out of the top five sources of applicants are web-based (SHRM, 2007). In addition, 37 percent of surveyed organizations identified web-based recruiting initiatives as generating the highest return on recruiting investments. Beyond seeking active candidates, more than 50 percent of surveyed organizations noted that they are leveraging the web to find passive job candidates. The use of technological tools to target top candidates who are not necessarily "looking" to change employers is an emerging use of e-recruiting technology. Using self service technology reduces the processing costs of HR up to 75%. E-selections and e-recruiting decrease costs of staffing and selections due to reduced employee turnover, reduced staffing costs, and increased hiring efficiency (Strohmeier, 2007).

E-selection uses technology to help organizations more efficiently manage the process of identifying the best job candidates—those who have the right knowledge, skills and abilities for each job and who may best fit the organization

(Richard & Gueutal, 2011). Faced with pressures to continually improve on the accuracy of selection methods and to meet legal requirements, organizations view technology as a way to manage the selection process more actively and to provide more evidence of the effectiveness of the chosen selection method. The business drivers behind the adoption of e-selection technology include: Reducing the time and resources required to manage the selection process, increasing flexibility in selection test administration: Previously, job candidates would need to visit an in-house or third-party testing center to complete the selection test in a proctored environment. E-selection reduces the time and resources required to manage the selection process (Richard & Gueutal, 2011).The researcher hypothesizes that: recruitment and selection subsystem has a positive significance effect on firm performance.

2.5 Critique of Existing Literature Relevant to the Study

HR departments are transforming themselves from a non-business-oriented, administrative cost-center to an internal business partner delivering additional value (Ulrich, 2008). Unfortunately, little is known how IT could enable such business support functions as HR to achieve sustainable business value (Laumer, Eckhardt & Weitzel, 2010). This might be explained by the fact that the IT penetration of corporate HR departments appears to be behind on that of core business functions. Although, the earliest mechanized employee information systems already appeared back in the 1940s, HR departments took little part in the technological advances that were occurring in the accounting and financial areas over the following decades.

In contrast, with the turn of the millennium, the IT enablement of core business processes reached a new level. Instead of automating existing processes, IT revolutionized business processes and allowed companies to provide their customers with a new value proposition. Examples are Amazon, Zara and Dell. Amazon pioneered online shopping, Zara completely abolished their costly in-store inventories through more accurate forecasting and efficiently integrated design, production and replenishment processes and Dell pioneered the built-to-order principle and produced and delivered a customized notebook in just 3 days after arrival of the order. These and many other companies distinguished themselves from the competition by using IT to perform processes differently, and therefore, gained a competitive advantage.

Despite the HR departments transforming themselves in order to gain a competitive advantage (Ulrich 2008), the IT support of HR processes is still behind that of core business processes because HRIS do not appear to go beyond operational efficiency yet (Wirtky, Eckhardt, Laumer, Wild & Weitzel, 2011).

The literature review shows many previous related studies in HRIS, however, most of them were theoretical. The studies done previously also do not link recruitment and selection subsystem of an HRIS to firm performance. Most of them address effectiveness and efficiency. The existing literature on HRISs suggests that human resource information systems have an impact on human resource management but this impact is not investigated to see how it affects a firm`s financial performance. Early surveys suggested that recruitment and selection subsystem of an HRIS were used predominantly to automate routine tasks. This has been overtaken by events and the research now should focus on how recruitment and selection subsystem of an HRIS strategically makes the firm more profitable.

The review of literature revealed that HRIS studies are also mostly done in developed countries. Not many published studies have been done on HRIS in developing countries where Kenya falls. Critical scrutiny of the existing literature also found out that HRIS in human resource planning has not been studied previously. Scholars have been researching on; recruitment and selection, training and development, performance management and reward management in the past

2.6 Research Gaps

As clearly shown in the literature review, the overall use of Information technology in an organization has an effect on the firm's bottom line (Mithas, Tafti, Bardhan & Gogh, 2012). The studies that were reviewed have looked at the organization wholesomely and not at a functional department level. Previously, organizations have deployed management information systems in all other functional departments of an organization but relegating human resources operations to the back burner. This study investigates whether the use of human resource information systems at the functional department has an impact on the firm`s performance. The study establishes the value of human resource information systems in an organization.

Also, there has been a dramatic rise in the use of human resource information systems in organization as a means of managing human resource (HR) processes (recruitment, selection, training, performance management, and compensation) (Gueutal & Stone, 2005). In fact, some estimates indicate that 88 percent of large organizations throughout the world have

adopted such systems (CedarCrestone, 2010). Surveys also show that organizations are using these systems to (a) to align HR practices with the company's strategic goals, (b) reduce administrative costs, (c) streamline HR processes, (d) support talent management systems, and (e) improve HR service to employees and managers (CedarCrestone, 2010). Not surprisingly, some initial evidence indicates that HRISs have the potential to increase the efficiency and decrease the costs associated with HR processes (CedarCrestone, 2010). Despite these preliminary findings there has been relatively little academic research on these systems in the fields of Human Resource Management (Gueutal & Stone, 2005). As a consequence, many new systems are being implemented without the benefit of research and additional theoretical and empirical work is needed to examine their acceptance and effectiveness.

In the literature review, it was noted that most studies in human resource information systems investigate the level of adoption and increasing efficiency and effectiveness. Adoption, efficiency and effectiveness are good for business but there is need to determine whether they translate to the bottom line i.e profitability. There is need to move beyond operational efficiency. This research addresses this gap by investigating the effect of human resource information systems on firm performance. Previously, researchers have addressed HRIS in recruitment and selection, training and development, performance management and reward management. These are very strategic practices in human resource management. If the organization pursues these diligently, ultimately there will be returns. This research also adds the use of HRIS in HR planning which has not been addressed before (Wirtky, Eckhardt, Laumer, Wild & Weitzel, 2011). HR planning is soon becoming a strategic practice with the emergence of workforce analytics phenomenon.

The previous studies do not link the use of human resource information systems to firm performance directly. Most of them address; cost reduction and improved decision making (Marler, 2009; Bondarouk & Ruel, 2010); these two aspects are supposed to enhance firm performance ultimately. This study addresses this gap.

The impact of IT on firm performance in the whole organization has been studied extensively previously. There are also many studies on the effect of human resource management practices on organizational performance. The same cannot be said about human resource information systems and firm performance. This study also handled that gap.

As Bondarouk and Rue¨l, 2006, noted, the e-HRM field is fed and complicated by two academic backgrounds; studies oriented towards IT-implementation and 'pure' HRM studies. The former usually investigate the usage of IT for HR purposes and mainly focus on the growing sophistication of technology and the qualities necessary for its adoption. However, these studies remain silent about changes in HR practices due to e-HRM. HR-based e-HRM studies generally only examine a single e-HR practice, focusing on the changes in HR processes and functions following automation.

This study addressed the multidisciplinary nature of human resource information systems ie. in the context of human resource management practices and information systems.

3. RESEARCH METHODOLOGY

Research Design

The study used in this study was descriptive and explanatory research design. The main aim of aim of explanatory research is to identify any causal links between the factors or variables that pertain to the research problem. According to Kothari (2009), descriptive research seeks to depict what already exists in a group or population. Descriptive research is unique in the number of variables employed. Like other types of research, descriptive research can include multiple variables for analysis, yet unlike other methods, it requires only one variable (Gall, M., Gall. J., & Borg, 2007). Kothari (2009), continues to say that a descriptive study is concerned with specific predictions, with narration of facts and characteristics ncerning an individual orco a phenomena.

According to Mugenda (2008), a descriptive study is logistically easier and simpler to conduct compared to exploratory research. Mugenda (2008) continues to say that descriptive design indicates relationships among variables that give important leads to define a phenomenon. This study compared return on asset ratios before and after implementation of human resource information systems. The financial statements of different years were collected as secondary data from the listed companies to achieve this. The listed companies are highly diversified in terms of sectors and attributes of the companies themselves. A descriptive study was appropriate for this study in order to bring out the unique industry influences in the use of HRISs.

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Target Population

The target population of this study was the listed companies at the Nairobi Securities Exchange. Target population is that population which a researcher wants to generalize the results of a study (Mugenda, 2008). The NSE has a total of 60 listed companies. These companies deal with different products and services and they are classified as such. The classification is as follows: agricultural, commercial and services, telecommunication and technology, automobiles and accessories, banking, insurance, investment, manufacturing and allied, construction and allied and energy and petroleum.

The companies represent the economy drivers in Kenya. The same classification used at the NSE was used in this study to find out the manifestations of HRIS in the various sectors of the economy. The study targeted Human resource managers of these listed companies who filled in questionnaires so that the relevant information could be obtained. The Human resource managers were obtained from a population of sixty listed companies at the Nairobi securities Exchange.

Table 3.1: Sectors of the Kenyan economy

S. No	Sector	Number	% of the listed Companies
1	Agricultural	7	11.7
2	Commercial and services	9	15
3	Telecommunication and Technology	2	3.3
4	Automobiles and Accessories	4	6.6
5	Banking	10	16.7
6	Insurance	6	10
7	Investment	4	6.6
8	Manufacturing and Allied	9	15
9	Construction and allied	5	8.3
10	Energy and Petroleum	4	6.6
	TOTAL	**60**	**100%**

Sampling Frame

A sampling frame consists of a list of items from which the sample is to be drawn (Kothari, 2009). The sampling frame in this study was drawn from 60 listed companies listed at the Nairobi securities Exchange.

Table 3.2: Sample Size

S. No	Sector	Number	Proportion	Sample size
1.	Agricultural	7	50%	**4**
2.	Commercial and services	9	50%	**4**
3.	Telecommunication and Technology	2	50%	**1**
4.	Automobiles and Accessories	4	50%	**2**
5.	Banking	10	50%	**5**
6.	Insurance	6	50%	**3**
7.	Investment	4	50%	**2**
8.	Manufacturing and Allied	9	50%	**4**
9.	Construction and allied	5	50%	**3**
10.	Energy and Petroleum	4	50%	**2**
	TOTAL	**60**		**30**

Sample and Sampling Technique

This study used purposive sampling and quota sampling techniques to get the right sample. Judgment (purposive) sampling enables you to use your judgment to select cases that will best enable you to answer your research questions and

to meet your objectives. This form of sample is used when working with very small samples such as in case study research and when you wish to select cases that are particularly informative (Neuman, 2009).

Therefore, in judgment sampling, the researcher needs to be knowledgeable about the target population (Cooper & Schindler, 2010). In this study human resource managers of 30 listed companies at the NSE were asked to give insights about the use of HRIS at their workplaces. The study collected data from the human resource manager in each of the 30 listed companies in the sample. The total sample size was 30 respondents, that is, one respondent in each company. The study arrived at this sample size by employing quota (proportionate) sampling from each sector of 50% due to the small number of firms in these sectors. Judgment sampling was used to obtain the sample from the fifty percent of the proportionate sample in each category. This helped in having a proper mix of multinationals and local companies in the sample.

Data Collection Instruments

Both primary and secondary data were used in this research. The primary data was used due to its nearness to the truth and ease of control over errors (Copper & Schindler, 2010). Primary data was collected using a self-administered questionnaire. Questionnaires are instruments completed by the respondents themselves (Bryman, 2012). Questionnaires are the most frequently used method of data collection in management research. They are relatively easy to use, inexpensive, and are often the most plausible alternative for measuring unobservable constructs such as attitudes, values and preferences, intentions, and personalities (Saunders, Lewis, & Thornhill, 2007). In this research a questionnaire was used as a general term to include all techniques of data collection in which each person is asked to respond to the same set of questions in a pre-determined order (De Vaus, 2013).A questionnaire provides accurate information and reaches a large number of respondents.

Questionnaires are highly structured instruments composed of pre-set standardized questions. Due to their highly structured format, questionnaires are used where the aim is to generate quantitative data from a sample to test research questions and/or hypotheses. Although questionnaires may be used as the only data collection method, it is usually better to link them with other methods in a multiple-methods research design (Saunders, Lewis, & Thornhill, 2007). In addition, questionnaires, if worded correctly, normally require less skill and sensitivity to administer than semi-structured or in-depth interviews (Jankowicz, 2005). The questionnaires were used to collect quantitative data. Quantitative data according to Saunders, Lewis and Thornhill (2007), is synonymous with any data collection technique or data analysis procedure that generates or uses numerical data. He contrasts that with qualitative which is synonymous with any data collection technique or data analysis procedure that generates or uses non-numerical data. Questionnaires were self-administered and two research assistants assisted in the delivering of the questionnaires to the respondents. The research assistants were also engaged in the collection of the filled in questionnaires.

Face-to-face Interviews were conducted to HR managers so as to corroborate the results obtained by the questionnaires. The overall aim of interviews is to elicit the interviewee's information (e.g., their thoughts and feelings) about a topic, rather than the interviewer influencing them. Interviews are typically conducted face-to-face, but telephone interviews are also common. Interviews often follow questionnaire surveys to explore issues in-depth, or precede them to help design surveys. Interviews are well suited when the researcher wants to see the topic from the perspective of the interviewee and understand how and why he or she comes to have this particular perspective. Oral interviews provide instant feedback and further probing is enhanced (Saunders, Lewis, & Thornhill, 2007).

Tashakkori and Teddlie (2010) argue that multiple methods are useful if they provide better opportunities for you to answer your research questions and where they allow you to better evaluate the extent to which your research findings can be trusted and inferences made from them. Quantitative and qualitative data collection techniques and analysis procedures each have their own strengths and weaknesses. There is inevitably a relationship between the data collection technique you choose and the results you obtain. In short, your results will be affected by the techniques and procedures used. The problem here is that it is impossible to ascertain the nature of that effect. Since all different techniques and procedures will have different effects, it makes sense to use different methods to cancel out the 'method effect'. That will lead to greater confidence being placed in your conclusions (Saunders, Lewis, & Thornhill, 2007).

Secondary data was collected from the Capital Markets Authority in form of financial statements of the listed companies.

Data collection Procedure

Creswell (2013), defines data collection as means by which information is obtained from the selected subjects of an investigation. In this study, purposive sampling and quota sampling techniques were used to get the right sample. Judgment (purposive) sampling enables one to use judgment to select cases that will best enable one to answer research questions and to meet the objectives. Questionnaires were self-administered and two research assistants assisted in the delivering of the questionnaires to the respondents. The research assistants were also engaged in the collection of the filled in questionnaires. Face-to-face Interviews were conducted to HR managers so as to corroborate the results obtained by the questionnaires.

Pilot Test

Cooper and Schindler (2010), indicated that a pilot test is conducted to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample. According to Babbie (2013), a pilot study is conducted when a questionnaire is given to just a few people with an intention of pre-testing the questions. Pilot test is an activity that assists the research in determining if there are flaws, limitations, or other weaknesses within the interview design and allows him or her to make necessary revisions prior to the implementation of the study (Kvale, 2007). A pilot study was undertaken on 5 listed companies to test the reliability and validity of the questionnaire.

Reliability

It refers to the extent to which your data collection techniques or analysis procedure will yield consistent findings. It can be assessed by posing the following three questions: Will the measures yield the same results on other occasions? Will similar observations be reached by other observers? and is there transparency in how sense was made from the raw data? (Easterby-Smith, Thorpe, Jackson, & Lowe, 2008). Reliability is the consistency of your measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. The study used the most common internal consistency measure known as Cronbach's alpha (α). It indicates the extent to which a set of test items can be treated as measuring a single latent variable. The recommended value of 0.7 was used as a cut-off of reliabilities (Saunders, Lewis, & Thornhill, 2007).

Cronbach's alpha is a general form of the Kunder-Richardson (K-R) 20 formulas used to access internal consistency of an instrument based on split-half reliabilities of data from all possible halves of the instrument. It reduces time required to compute a reliability coefficient in other methods (Mugenda, 2008). Finally, the pilot survey drew responses from the interviewees on the design and content of the instrument and suggestions for more efficient and practical way of administering it.

Validity

It is concerned with whether the findings are really about what they appear to be about (Saunders, Lewis, & Thornhill, 2007). Validity is the strength of our conclusions, inferences or propositions. It is the best available approximation to the truth or falsity of a given inference, proposition or conclusion. The validity and reliability tests were consistent with tests done by other human resource information systems scholars, for example, Al-Shqairat, (2010).

Data Analysis and Presentation

The study used qualitative and quantitative techniques in analyzing the data. After receiving questionnaires from the respondents, the responses were cleaned (checking for outliers), edited, classified, coded and tabulated to analyze quantitative data using Statistical Package for Social Science (SPSS) version 20.0 software and descriptive and inferential statistics.

Outliers are observations that have extreme values relative to other observations observed under the same conditions. Observations may be outliers because of a single large or small value of one variable or because of an unusual combination of values of two or more variables

(Saunders, Lewis, & Thornhill, 2007). Outliers are brought about by Data Entry Errors, Implausible Values or "Rare" events. There are many ways to look at a distribution of numerical values to see of certain points seem out of line with the majority of the data (Montgomery, 2005). The study employed Kurtosis to check for outliers; According to Saunders,

Lewis and Thornhill, 2007 Kurtosis is the pointedness or flatness of the distribution compared with the normal distribution. It gives excellent properties for detecting departures from normality.

Descriptive statistical analysis focuses on the exhaustive measurement of sample characteristics. Inferential statistical analysis involved using information from the sample of the human resource managers to make inferences, or estimates; about the population. Factor analysis was conducted to get rid of the less relevant factors. Linear Regression was applied to test the effect of independent variables on firm performance. Linear regression was chosen for its ease of understanding and it is the most suitable analysis method (Saunders, Lewis, & Thornhill, 2007). The results were presented in form of graphs, pie charts, tables and figures.

1) Regression Analysis

Firm Performance was regressed against five variables of human resource information systems namely Recruitment and Selection subsystem, Training and Development subsystem, Performance Management subsystem, HR planning subsystem and Reward Management subsystem. Linear regression implements a statistical model that, when relationships between the independent variables and the dependent variable are almost linear, shows optimal results. This study was being carried out on the premise that there is a linear relationship between the use of human resource information systems and the performance of the firm.

The equation was expressed in the following equation:

$Ys = \beta_0 + B_{1x1} + \varepsilon$ ……..equation

Where,

Ys = Firm performance

ROA = Annual net income to average total assets

Net Profit after Tax = Net Profit - Tax

β_0 = constant (coefficient of intercept)

x_1 = Recruitment and Selection subsystem

ε=Error term

$B_1 \ldots B_5$ = regression coefficient of five variables.

The study used the ROA and Net profit after tax to measure firm`s performance. The effect of HRIS on firm`s performance was done by comparing the ROA and Net profit after tax before and after installation of HRIS.

The error term of an observed value is the deviation of the observed value from the (unobservable) true function value. The error term took care for the unobservable variables that may cause a change in firm performance other than the HRIS.

The regression model above was used to test the hypothesis as stated in Chapter one.

The qualitative data collected from the questionnaire was also analysed through SPSS and Excel. Excel was used to tabulate all the responses giving them specific codes (Precoding). The precoded data was then analyzed through SPSS to produce output inform of frequency tables graphs and pie charts. Qualitative data from interview guide was also analysed using the same the same procedure.

4. RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings obtained from the field. The chapter presents the background information of the respondents, findings of the analysis based on the objectives of the study. Descriptive and inferential statistics have been used to discuss the findings of the study.

4.1.1 Response Rate

The study targeted a sample size of 30 respondents all of which filled in and returned the questionnaires making a response rate of 100%. This response rate was excellent to make conclusions for the study. According to Mugenda (2008),

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a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent.

Reliability Results:

Cronbach's Alpha was used to test the reliability of the questionnaire Since the research instrument yielded reliability coefficient of more than 0.7 on Recruitment and Selection Subsystem (α=0.821), It can be concluded that the research instrument was adequate for subsequent analysis

Table 4.1: Reliability Coefficients

Scale	Cronbach's Alpha	Number of Items
Recruitment and Selection Subsystem	0.821	8

Validity Results:

Bartlett's test of sphericity was applied to test whether the correlation between the study variables exists while KaiserMayor-Oklin measures of sampling adequacy (KMO) as shown in below The Kaiser-Mayor-Oklin measures of sampling adequacy show the value of test statistic as 0.576. and p-value <0.05. Bartlett's test of sphericity had a chi-square value of 1296.428 p-values of 0.000. Since the p-value is less than 0.05, then it implies that there exists a relationship between the study variables, therefore, providing a ground for further statistical analysis to be conducted

Table 4.2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling		0.576
	Approx. Chi-Square	1296.428
Bartlett's Test of Sphericity	df	30
	Sig.	0

Regression Analysis Results

In this study, a multiple regression analysis was conducted to establish the effect of the recruitment and selection subsystem of an HRIS on the firm performance, a linear multiple regression analysis was performed and the results presented below.

Table 4. 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	.806	.789	.893

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variables: From the findings in the above table the value of R squared was 0.806 an indication that there was variation of 80.6 percent on firm performance due to changes in recruitment and selection subsystem of an HRIS at 95 percent confidence interval . This shows that 80.6 percent changes in firm performance could be accounted to changes in recruitment and selection. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.898.

Table 4. 4: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	1.350	1.635		.825	.419
	Recruitment and Selection subsystem	.509	.311	.402	1.637	.017

From the data in the above table the established regression equation was established

$$Y = 1.350 + 0.509\ x_1 + \varepsilon$$

From the above regression equation it was revealed that recruitment and selection, training and development, human resource planning, reward management subsystem and performance management subsystems to a constant zero, firm performance would be at 1.350, a unit increase in recruitment and selection subsystem would lead to increase in the firm performance by a factor of 0.509

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

Recruitment and Selection Subsystem and Firm Performance

From the findings the study established that recruitment and selection subsystem affects performance of NSE listed companies to a great extent. The study also revealed that; human resource information system reduces recruiting costs, it improves employees` talent in the right place at the right time, it helped in evaluating the recruiting processes effectively, it also helped to maintain relationships with individuals who register in a talent warehouses, the study further established that human resource information analyses each job position and its job title, analyses the employees capability in each job position, human resource information system eliminates unsuitable applicants early and focuses on promising candidates; human resource information system identifies unfilled positions accurately; it performs comprehensive reporting and tracking of applicants efficiently. HRIS maintains skill inventory and supports development of recruiting plan. HRIS administers selection tests and rates job candidates appropriately. Most of the organizations candidates were recruited through HRIS e-recruiting. The study further established that the HRIS helped to track down paths through which work-related decisions are taking the organization. By having a clearer view of what is presently happening in the company, the management can also predict what could happen in the future and respond accordingly. HRISs improve recruiting efficiency and reduce costs, they increase quality and quantity of applicants, increase the objectiveness of, and standardize, recruiting practices. E-selection and e-recruiting decrease costs of staffing and selections due to reduced employee turnover, reduced staffing costs, and increased hiring efficiency. This efficiency eventually translates to an improved bottom line of the company.

Recommendations of the Study

The study recommends implementation of recruitment and selection subsystem of an HRIS. The subsystem if implemented benefits a firm in various ways which include reduction of recruiting costs, improvement of employees` talent in the right place at the right time; analyzing each job position and its job title; analyzing the employees capabilities in each job position, and eliminating unsuitable applicants early and focuses on promising candidates.

Areas for Further Research

Despite the contributions of this study, several factors limit the generalizability and usefulness of the findings. Firstly, the small size of the population, there were 60 companies listed at the NSE by December, 2012. After four of them were eliminated only 56 were eligible for the study. The sample obtained was for 30 HR managers. Future research should consider bigger samples. Besides, the study was cross-sectional, and took into consideration data for 2013 only. It can be presumed that a better picture would have been obtained had the study been longitudinal.

Secondly, although there are advantages in studying listed companies, especially the availability of data, this target population does not have a good representation of all the industries, with banking sector having the bulk of listed companies, followed by Commercial and Services and Manufacturing and Allied. Telecommunication and Technology sector has only two firms. A detailed analysis of performance of specific sectors is difficult using listed companies alone. Future research should consider studies of specific industries for more insightful analysis.

Thirdly, the study was carried out at the Nairobi Securities Exchange. Thus, the results may not be valid in other sectors e.g the public sector. Although it is unlikely that the best HR practices vary across industries, the current findings need to be validated in other sectors to rule out industry as an important contingency factor. Further research should be carried out in these sectors.

Fourthly, it is only the human resource managers who were considered in the study. Junior workers could be considered in future in case they have different opinions on the role of human resource information systems in firm performance.

Fifthly, it is only five human resource management practices which have been looked at in this study; recruitment and selection, training and development, performance management, HR planning and reward management. It would be interesting to investigate the use of human resource information systems in other practices e.g. occupational health and safety, labour relations and absence management.

Factors affecting successful implementation of information systems could also be a topic for future research. The privacy of employees when using HRISs should be investigated also in future research. The study also suggests research to be carried out on the challenges that hinder the improvisation of human resource information systems in the Kenyan companies. Lastly, the way modern trends in Information Technology like HR analytics and cloud computing affect human resource management practices could be investigated in future research.

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