**IMPACT OF INFORMATION TECHNOLOGY ON HUMAN RESOURCE MANAGEMENT PROCUREMENT FUNCTIONS: A CASE OF A NIGERIAN UNIVERSITY**

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**Abstracts**

Information Technology’s (IT) role in Human Resource Management (HRM) has attracted minimal interest and attention in the academia industry. The few empirical studies available did not examine the effect of IT on HRM on a comparative basis. Therefore, this study seeks to examine the nexus between IT and HRM procurement process in Nigerian Universities (education sector) with reference to the University of Ilorin. Other objectives are to: (i) examine the extent to which IT influences the HR procurement functions (ii) determine the nature of relationship that exist between/among IT tools and HR procurement functions. Questionnaire was served to the entire 50 members of the staff of the University HR department being census approach. Two hypotheses stated were tested using regression and correlation analysis. The findings revealed that IT has a significant effect on HR procurement functions and that IT tools and HR procurement functions are correlated. The study concludes that IT impacts strongly on HR Procurement activities. This study recommends that the management of Nigerian higher Institutions, inclusive of University of Ilorin, should consistently upgrade their HRIT software to cover a significant number of HR activities in line with the best HR practice as its long-term benefits exceed the pains of its initial cost.

**Keywords:** Information technology, Human resource management, Procurement functions, Self-service technology, Human resource information system

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**Introduction**

The introduction of information technology in personnel management has increased organizational efficiency through reliable data gathering, transparency in data management and consistency in processes, increased availability of much needed pre-selection information about job seekers, cut down recruitment cost and above all overhaul the image and functions of human resource managers to a more strategic one. The advent of computer and internet have eased data management in terms of collecting, analyzing and processing vast amount of it, improve the means of communication and enhances the performance of human resource procurement functions with high speed and appreciable level of accuracy. The impacts of IT have been observed greatly in the procurement system and all other areas of HR processes in tertiary institutions in Nigeria. In short, it has become an indispensable part of every organization because of its capability to
increase the efficiency as well as cut cost of the recruitment, selection and placement activities.

The importance of human potential in any organization, inclusive of educational institutions increases with speed with its changes. This appears in modern establishments as human capital represents a cogent predicator of any changes. Previously, the role of HRM department which is synonymous to all organizations was mainly administrative; however, to reduce the manual workload of these administrative activities, organizations have developed Human Resource Management System (HRMS) which makes use of sophisticated IT software that has the capability of automating HR processes electronically.

As a result of this development, the use of information technology in HRM procurement has grown considerably in recent years and there are now extensive applications across a wide range of HRM activities, including the educational institutions in Nigeria. According to Ruel and Bondarouk, (2008), the term e-HRM was first used in the late 1990’s when e-commerce was sweeping the business world. e-HRM is an internal application of e-business technique to add value to the management through more effective and efficient information flow and as an alternative of processing HRM. As information technology advanced, so did the capacity and ability of higher institutions in Nigeria to manage an increasing number of HRM processes in an efficient way, thereby, resulting in the increase of pool of information and knowledge.

The use of HRMS attracted the attention of HR practitioners since the late 1990s and has been applied in almost all HRM practices ranging from administrative and data documentation purposes. This has recently grown into HRM supporting application for procurement reward management and human capital maintenance and so on.

Human Resource Management System can be described as a system that helps an organisation to acquire, store, manipulate, analyze, retrieve, replace and distribute information relating to an organization’s human resources. On the other hand, the term ‘e-HRM’ is commonly used to represent the application of information technology within the HRM function.

With IT, the HR role of procuring (recruiting, selecting and placing) the best candidates becomes more efficient, reliable and cost effective. The available scientific information indicated that one of the strong pillars that contribute to the fulfillment of the personnel policy is the use of IT technologies in HR. Information and Communication Technologies (ICT) is now an household term as techniques associated with mobile communication, internet, news media and PCs allow both public and private organizations to improve their internal procedures, competitive advantage, organizational designs as well as relevant markets on a global scale. ICT is fast gaining acceptance in every sector of the economy and has implication for almost every enterprise (Helfen & Kruger, 2002).

Without question the importance of vibrant human capital as agents of competitive advantage in organizations which face volatile business operating environment have constant changes which erode traditional HRM practices and processes. Therefore, the need to reduce high cost and time, commonly used by organisations in the HRM procurement functions through the traditional approach of manual filing, arranging and sorting of files, writing and analyzing application pools, selecting the best out of the applicants which is prone to human influence, calls for greater concern and thorough academic attention.

It is also evident, that the fear of the application of IT tools to aid effective and efficient performance of HRM functions is generally based on the
grounds of high cost involved in purchasing and training HRM teams. This versus the long term benefit needs explicit discussion with the competitive advantages that quality personnel offers to modern organization as competition among organizations becomes challenging day by day. Apart from that, the traditional approach of manual operation often leads to incapacitation on the part of many organisations today as they are unable to compete favourably in terms of personnel qualities among their peers.

Communication and collaboration within and outside the organization becomes difficult with the traditional HR processes, inclusive of procurement processes. A situation where applicants have to submit their applications through a desk officer, instead of a self-service HR system such as e-recruiting, e-selection and placement remains a drawback to many organizations’ as the chance of selecting the best as such an approach might not give room to a large pool of applicants as a web system will do.

From the researches done on this subject matter, not much study has been done on the impact of IT on human resource management function and specifically on the human resource procurement functions in the educational sector of Nigeria, despite the fact that, the quality of personnel in universities has serious implications on the growth and development of Nigeria.

Based on the foregoing discussion, this study seeks to examine the impact of IT on the human resource management procurement function among many functions under the auspices of HRM with particular reference to University of Ilorin. In addition, this study examines the relationship between information technology tools and human resource management procurement functions. The choice of University of Ilorin as a case study was borne out of the fact that the University just like any other leading universities in Nigeria switched from manual to technology driven HRMS since one and half decade ago, out of its 43 years of existence. Therefore, the outcome of this study would be useful to all Nigeria Universities as they all operate under a unified control of the National University Commission (NUC) which has directed all universities to embrace the use of cuttingedge technology in their operations, as the manual mode of operations is subjected to all forms of manipulations and corruption.

**Literature Review**

**The Concept of Information Technology**

Ralston, Hemmendingre and Reilly (2000) viewed information technology as the convergence of technology with application in the broad field of data storage, retrieval, processing and dissemination. Information technology (IT) is the application of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data (Margaret, 2017). Kamal, Mehruz, Silva and Gerardo (2013) are of the opinion that computers have made the job of analyzing large amounts of data, into a simple one and they serve as reliable aids in human resource management, from procurement, payroll process and record retention. With computer hardware, software, and data basis organisations can keep records and information better as well as retrieve them with greater ease. IT as a structural factor and instrument that has the capacity to transform architect of organizations, business processes and communication and is increasingly integrated into human resource management.

**Benefits of Information Technology**

Technology impacts interrelationships and work flows in organizations by enabling easy access to information and thereby join people electronically (Ulrich, 1997). With new processes and its attendant benefits, HRIS have drastically changed the traditional HR processes.
and it is expected that HRIS will provide functionality for realization of units’ objectives and goals (Hendrickson, 2003).

The consequences of IT on HR can be applied in many ways. First, it cuts down the costs of processes and work. For example, transforming from traditional HR to e-HR reduces costs of some HR applications, such as, postal cost, announcement cost and data processing cost (Lin & Hendrickson, 2003). According to Strohmeier (2007), applying self-service technology reduces the processing costs of HR up to 75%. E-selections and e-recruiting also reduces costs of staffing and selections due to a reduction in employee turnover, staffing costs, and thereby increased hiring efficiency (Strohmeier, 2007).

Next, IT allows HR professionals to spend less time on routine tasks (Gardner, Lepak & Bartol, 2003) and make it easier to acquire and analyze information (Bell, Lee & Young, 2006).

HR practitioners are able to spend more time on other aspects of their jobs. As a result, HR professional can access more information, respond to problems in a timely manner, from managers and employees and even evaluate the complex information more effectively (Gardner, Lepak & Bartol, 2003). Comparing with manual processes, reducing data errors, simplifying and fastening processes of HR practices, make HRIS more advantageous (Ulrich & Hendrickson, 2008).

In addition, IT enhances the skills of workers for collaborating, accessing information and decision making (Tafti, 2009). Participative decision making becomes an organization-wide activity. Internet and web-based technologies facilitate sharing of decision-making responsibilities through the organization hierarchy and structure (Benson, Johnson & Kuchinke, 2002). In addition, HRIS is seen as an integrated system that assists in increasing the capacity of reporting in the work place (Dessler, 2008).

IT tools also assist HR professionals to reach larger candidate pool, make more effective and efficient decision towards the employment of relevant and competent candidate during selection and recruitment exercise. This in turn enhances the competencies of incumbents due to quality of works. At the same time, e-HR often assist in effective development of human capital in organization by clearing access bearings often created by distance (Lin, 2011).

Knowledge management system is an inherent extension of HRIS and HR development activities (Hendrickson, 2003). It is a process and procedure of acquiring, creating, capturing, synthesizing, learning, and using information, insights, and experiences to enhance decision making (Ardichvili, 2002). HR professionals should incorporate traditional HR functions into knowledge management (Hendrickson, 2003). Using IT tools such as intranet, virtual collaborations, data storage and data withdrawal can improve skills for knowledge acquisition and distributions (Ardichvili, 2002). Knowledge Management tools also improve knowledge participation and empower the specific task areas (Tafti, 2009). IT assists HR professionals to access and disseminate information more efficiently (Gardner, Lepak & Bartol, 2003).

IT is also accepted as an important impetus for strategic HR because it builds stronger HR units and allows HR to engage in more significant strategic roles. IT solutions free HR from the burden of routine administrative tasks that is known with the traditional HRM system (Haines & Lafleur, 2008). If HR professionals maximize IT, they would hold a more strategic role, because, they would have the opportunity to interpret information, develop strategies and think about corporate transformation (Gardner, Lepak & Bartol, 2003).

The benefits of having a sophisticated HRIS or HRMS are enormous. A properly monitored HRIS or HRMS by qualified specialists who have the knowledge of technology, HR functional and
tactical processes can manage compliance with federal and state laws, streamline processes for procurement, and produce analyses, data and reports for internal and external consumption.

Other merits of HRIS encapsulate the ease of use by qualified computer technology specialists, accuracy of information and the ability to perform HR audits by using any combination of the parameters. With HRIS, employee and manager have free access to self-service features which provides excellent ways to free up the time of the human resources staff members for other works and other duties, since employees and managers can find answers and information quickly without the need to consult an HR representative every time.

**IT Challenges**

Despite its numerous benefits, IT is not free from challenges. One of the challenges is that IT is expensive. Most small firms which lack financial capacity to adopt this expensive technology, end up losing their clients to other firms with improved technology and better service. If a company is not big enough to have a dedicated human resources technology specialist, then it may have to consider outsourcing.

Another challenge is that IT is prone to human errors. Most of the demerits of an HRIS involve human errors during information input, expensive technology to update the system and malfunctions or insufficient applications to support human resources needs. The high demand for computer and technology specialists with general information technology knowledge, and assessing a qualified specialist with human resources functional area knowledge can pose a serious challenge. With such a demand, organisational cost of hiring a qualified HRIS specialist may be far above the average salary for a computer technology specialist. The cost to hire another employee in a specialized field may be a stretch for some small businesses (Ruth, 2017).

Next, IT has taken over most positions which were formerly occupied by humans. For instance, Accounting is now being done by software, which reduces employment opportunities of an accountant.

Finally, most organizations risk losing important data to the hackers or viruses that can pose serious threat to the survival of an organisation since important data is stored on remote cloud servers.

**Concept of Procurement System**

Procurement simply means acquiring the human resources or the manpower required by an organisation from time-to-time. Sometimes, procurement could be from the employment market or within the organisation. The underlining principle in procurement is simply fixing a round peg in a round hole that is, getting the right man for the right job. The procurement function includes HRM activities of manpower planning and forecasting, recruitment, selection, appointment, placement and induction of employees so as to have a team of efficient and capable employees for the good of the organisation. Besides, promotions and transfers are covered by this broad personnel function. In recent time, scientific approaches are mostly used for recruitment and selection of the most suitable manpower for the benefit of the organisation. In short, procurement refers to a string of activities undertaken by the HR managers for filling the present and future vacancies of the organization (Shanthi, 2010).

Besides, the first operative function of personnel management is procurement. It is all about procuring and engaging applicant who possesses the required skill, knowledge and aptitude. Under its purview is job analysis, manpower planning, recruitment, selection, placement, induction and internal mobility.
Job analysis concerns the collection of information regarding the operations and responsibilities pertaining to a specific job. Human resources planning is a process of determining and assuring that the organization will have the required number of qualified persons, available at proper times, performing the jobs which would meet their desires and offer them satisfaction. Recruitment is all about searching for prospective employees and encouraging them to apply for jobs in the organisation, while selection is the act of selection which involves ascertaining qualifications, experience, skill and knowledge of an applicant with a view to appraising his/her suitability to the job in question.

Placement is the process that guarantees an around fit, matching the employee’s qualifications, experience, skills and interest with the job on offer. Therefore, personnel managers have the role of positioning able employee to a required job status. Induction and orientation are techniques by which a new employee is rehabilitated in his new environment and introduced to the rules and practices as well as the people. The new employee must be familiar with the principles which define and drive the organisation, its mission statement and values which form its backbone.

Finally, internal mobility is all about movement of employees from one job to another through transfers and promotions within the same organisation. Generally, employees leave an organisation for various reasons ranging from resignation, retirement and termination. These types of movement are known as external mobility. In the best interest of an organisation and its employees, such job changes should be guided by well-conceived principles and policies (Shanthi, 2010).

**IT Tools for HRM Procurement Functions**

Amongst the commonly used IT tools for HRM procurement functions by human resource practitioners in modern day system that aid in effective and efficient management of recruitment exercise identified in this study are as follows:

i. **e-recruitment web portal**

This is a recruitment portal where positions and qualifications needed for a specific job are posted by employers. This enables job seekers to select their field of expertise and apply for that particular position online. HR recruitment process in the view of Ramey (nd) have even made e-recruitment visual, as it enables Job seekers to post videos describing what they can do as well showcase some of their potentials.

ii. **Social medial website**

This is also an electronic media website commonly used in HRMPF where job postings can be found. In this case, people are recruited through social networks like Facebook, Instagram, Twitter, LinkedIn, etc. Here, a business merely posts a job position on its Facebook page and interested job seekers will apply and any of them that qualifies for that position are contacted (Ramey, nd).

iii. **Induction packages**

The first step towards gaining an employees’ commitment is staff induction. This is aimed at introducing the job and organization to the recruits. It equally involves orientation and training of the employee in the organizational culture, and showing them on how to interconnect in the organization. Therefore to assist managers in doing these, the induction training may be passed through electronics and printed materials. Sometimes, a link is created through internet where trainees are given the opportunity to make clarifications on grey areas that are not clear during physical contact.

iv. **HR planning and forecasting**

Projecting labor needs and their effects on a business involve the use of Human resources
(HR) forecasting. Both short and long term staffing needs depend on projected sales, office growth, attrition and other factors, call for use of forecasting by relevant departments in any company. Aside from forecasting the number and type of workers needed, HR planning also includes reviewing the various costs and administrative work that go along with adding workers or downsizing. All these activities are done with the aid of computer software that produce a more accurate result regarding the data fed (Ashe-Edmunds, 2019).

**Underpinning Theories**

Conclusively, this study will make use of the two theories, innovation diffusion theory and technology acceptance model (TAM), as they both address the main issues relating to the theme of this study which has to do with the general belief, trust in and wholesome agreement in the ability of IT and its tools in enhancing operational efficiency and its ease of use.

Everett Rogers was well known for his book called “Diffusion of Innovation” (1962) in which he explains the theory of how innovations and ideas spread across the populations. He acknowledged that innovation is communicated by the process of diffusion in a social system. According to Rogers, Innovation Diffusion Theory seems to be the most popular theory for studying adoption of information technologies (IT). Going by this theory, innovation connotes idea, process, or a technology that is perceived as new or not so familiar to individuals within a specific area or social system. Diffusion on the other hand is the process by which information about innovation moves from one individual to another over a period of time in a social system.

Generally, there are four main determinants of success of an IT innovation - communication channels, the attributes of the innovation, the characteristics or the features of the adopters and the social system itself. The communication channels refer to the medium through which people obtain the information about the innovation and perceived usefulness. It consists of both mass media and interpersonal communication. The features of an innovation include five user-perceived qualities: relative advantage, compatibility, complexity, trial ability and observability. Relative advantage implies the levels at which the user perceives usefulness or improvements upon the current technology by adopting an innovation. Compatibility includes the level at which an innovation is consistent with the existing technical and social environment. Therefore, the more an innovation can integrate or coexist with existing values, past experience and the needs of potential adopters, the greater its prospects for diffusion and adoption.

Davis (1986) expunged TAM from the theory of reasoned action in the 1980s. The theory focused on the probability of information technologies being accepted by the people. As a predictive tool, the theory also detects the needed modifications that can facilitate wide acceptability by the users. The cardinal indicator of IT acceptability identified by the theory are both perceived ease of use and usefulness. While perceived ease of use is concerned with, the comfort experienced while replacing manual process with technology-induced process, perceived usefulness borders on the extent to which performance and result is boosted with the application of IT. Studies have confirmed that perceived ease of use and perceived usefulness have remained the cardinal dimensions of TAM (Lessig, 1980; Hauser & Shugan, 1980; Swanson, 1987).

**Empirical Review**

Alok and Ibrahim (2010) investigated the impact of information technology on human resource management system in Turkey. Adopting a survey approach and obtaining the needed data by means of a validated questionnaire which was administered to 200 managers of both private and public sector organizations, were based on judgmental sampling. It was found out from
the study that Information Technology (IT) has a significant impact on all sector in terms of management and planning tasks, at the same time, the type of IT used vary significantly for the tasks of recruitment, maintenance and development functions.

Adewoye and Obasan (2012) studied the impact of information technology on human resource management in the banking industry through the administration of questionnaire to the HR managers and staff of ten branches each of the selected banks with the minimum of 20 years working experience in the same bank. Using a descriptive statistics based on the percentage impact metrics variables, they concluded that IT has significantly increased the efficiency of HR management activities and processes through an effective and efficient employee communication and engagement. Meanwhile, the roles and skills of HR managers has expanded considerably overtime due to their adoption and continuous upgrade of knowledge in the use of IT in the performance of their specific roles.

Ziad (2014) studied the effect of new technological changes in improving the environment of HRM among Jordanian industrial companies listed at Amman Stock Exchange. Adopting the survey research design with the use of regression analysis techniques, he found that adopting new technologies have a significant positive effect on the environment of human resources management, and that the new technologies would make management more effective, and could save time and money.

The empirical review shows that research conducted on the influence of IT on the human resource management practice were carried outside Nigeria whose culture, attitude and social background are different from those of Nigeria. Besides, the Nigerian study on the same topic were carried out in the banking industry, making this study on the HRMP functions in Nigerian educational sector a unique one. A thorough review also showed that the past efforts, both in Nigeria and abroad, did not focus on a particular aspect of HRM system; instead they looked at almost all aspects without having an in-depth study of the main functions of HRM practice such as human capital procurement, which this study aims to address.

This study hypothesizes that there is significant positive effect of each of the four IT tools on HRM procurement functions. The IT tools are e-recruitment web portal, social media website, induction packages and HR planning and forecasting.

**Methods**

This study adopted a purposive design to inquire the impact of IT on human resource management procurement functions by constructing a well-structured questionnaire which are divided into two sections (Sections A and B). The information needed was obtained directly from the sampled population. Section A comprises of questions regarding respondents’ background while section B contains questions regarding commonly used IT tools and their usage in HRM procurement functions. The questions are depicted in the appendix. The questionnaire was administered to the entire 50 staff of Human Resource Department of University of Ilorin. A census study was considered because the target population was small to sample and can be reasonably covered by the researcher. The study adopted a five (5) Likert scale response style to elicit information from the respondents. Regression and correlation analytical tools were used to test the hypotheses. Out of the 50 questionnaires administered, 49 were adequately filled and returned which brings the response rate to 98%. Data collected were analyzed in relation to the formulated hypotheses through the use of regression and correlation analysis. The structural equation to be tested is:
HRMPF = $\alpha_o + \beta_1 eRWP + \beta_2 SMW + \beta_3 IP + \beta_4 HRPF + \varepsilon$ \hspace{1cm} (1)

Where:
- HRMPF = Human resource management procurement functions,
- eRWP = e-recruitment web portals,
- SWM = social media websites,
- IP = Induction packages, and
- HRPF = Human resource planning and forecasting, and
- $\varepsilon$ = error term.

**Results**

Figure 1 reveals the level of application of IT to the HRM procurement functions in HR Department at the University of Ilorin, Nigeria. The data collected from the respondents show that e-recruitment web portal constitutes 48% of the activities which are being carried out are pursued through the use of computers and internet. HR planning and forecasting forms 25% of the total application of the IT, while induction packages and social media website constitute 10% and 17% of IT application, respectively. This indicates that Information Technology (IT) has great influence on Human Resource Management Procurement activities which are performed by the HR department staff of the University of Ilorin. This indicates a total departure from the manual and inconsistent way of performing HRM procurement activities.

![Figure 1: Application of IT tools in HRM procurement activities](image)

Table 1 shows the correlation among variables. The analysis shows that all the four IT tools (e-recruitment web portals, social media websites, induction packages and HR planning and forecasting and human resource management procurement functions) are positively related to HRMPF. The analysis also shows positive relationships among the four IT tools.
The correlations matrix reveals the relationship that exist between/among the information technology tools and human resource management procurement functions. The analysis shows that interconnectivity exist between/among the variables of information technological tools except for induction packages with a very low and insignificant relationship with HR planning and forecasting. Equally, it is also noted that all information technology tools were significantly related with HR procurement functions except for induction packages.
Subsequently, the hypothesis is tested using a multiple regression analysis. Table 2 presents the summary results of the regression model, where HRMPF is the dependent variable. The high F-value shows that the model is significant and the $R^2$ shows that the IT tools are able to explain 95.3% of the variation in HRMPF. This finding is in line with those of Alok and Ibrahim (2010) and Adewoye and Obasan (2012), where they both concluded that IT enhances greater efficiency in HRM practice or activities. Except for social media website, the other three IT tools (e-Recruitment web porters, induction packages and HR planning and forecasting) have significant positive impacts on HR management procurement.

**Discussion of Findings**

The findings from the study revealed that information technology (IT) significantly affects human resource management procurement functions activities in modern organisations looking at human resource managers who strive to attain more relevant goals in the strategic direction of the organisation. Using multiple regression analysis, the study concluded that all information technology (IT) tools (except the Social Media Website) were found to have significant effect/impact on the way human resource management procurement functions are performed.

Besides, the findings from the study revealed the existence of positive and significance relationship between/among information technology tools and human resource procurement functions. Using correlation analysis, the study concluded that virtually all IT tools are positively correlated. The result supports the usefulness of all the IT tools as indicated above to the efficient and effective performance of organisation’s HRM procurement functions and eventual attainment of competitive advantage driven by procurement and maintenance of quality human capital.

**Conclusion**

To guarantee consistent ability and competency, seamless communication between job seekers and job providers, wider coverage during recruitment exercise for fair representation and subsequent attraction of quality employees, low cost of human resource procurement and high speed and efficiency in HRM internal operation, it is very important that organisations make very good use of information technology. This however necessitates the need for organisations to consistently upgrade, monitor and improve on the information technology for currency and prompt achievement of organizational goals and objective.

Based on the findings and conclusion drawn above, the following recommendations are made to organisation managers, the human resource management practitioners, top management executives and other stakeholders. First, management of higher institutions in Nigeria should persistently encourage, provide and train its personnel on the use of IT in the performance of their routine job as its long term benefits exceeds the pains of its initial cost. Second, it is expedient that effort should be put in place to consistently upgrade the existing HRM software to capture a wider and offsite recruitment test, interview, induction, training and development activities. The e-learning system currently applied should be improved upon to accommodate courses that have a large pool of students and at the same time guarantees consistent and barrier free communication between students and their instructor. Finally, it will add to the knowledge base in human resource management if future researchers can dwell on the application of information technology (IT) to other areas of HRM function such compensation, employee maintenance and development.
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