EFFECTS OF ICT ADVANCEMENT ON HUMAN RESOURCE MANAGEMENT IN SELECTED ENTERPRISES IN ABIA STATE, NIGERIA

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ABSTRACT: *the focus of this paper is to examine the effects of ICT advancement on human resource management in selected enterprises in Abia state, Nigeria The study took a descriptive survey approach. Data was sourced from a five point likert scale questionnaire administered on a sample of 219 respondents who were drawn from a population of 240 human resource management staff of twenty five selected firms in Abia state. The data gathered were analyzed with Mann-Whitney (U) test using the 20.0 version of statistical package for social sciences (SPSS). It was discovered that as changes in ICT occurs, it drives a change in the function and process of HRM. The paper therefore concludes that ICT has significant effect in the integration and performance of operational, relational and transformational human resource management; therefore, top management in organizations in Abia state should embrace the ICT option in their pursuit for effective and efficient human resource management. It was recommended among others that; organizations should have home e-HRM programmes that addresses their peculiar needs instead of adopting any kind of e-HRM which does not confer strategic and cost benefits to the organization*

KEYWORDS: *Business Environment, HRM, ICT, Operational, Relational, Transformational*

1. INTRODUCTION

Over the years, scholars and management practitioners holds human resource as key to organizational performance. The differences in the knowledge, aptitude and personality of the employees make it important that organizations must develop an operational model that efficiently fuses the unique capacities of the employees for the good of the organization, managing human resource in this ICT driven market changes is therefore more tasking. Changes

in business processes have therefore taken its toll on human resource practices. One of such changes is the advancement in information and communication technology and its adoption in business practices. Moreover, the complex and dynamic nature of business environment makes it expedient for organizations to have a reliable system of data flow for decision making purposes.

However, looking at the nature and ownership structure of organizations; whether public or private, every organization pursues basic human resource objectives which include; human resource cost efficiency, enhanced productivity through adequate employees motivation, talent and knowledge management and the developing of strong organizational memory. According to Michael, Kavanagh, Thite, & Johnson (2012), with an increase in the number of organizations, Human Resource is now viewed as a source of competitive advantage. It is necessary for firms to have highly skilled human capital to provide them with a competitive edge. So, an effective management of Human Resource in a firm is to gain advantage in the marketplace which requires timely and accurate information on current employees and potential employees in the labor market. With the changing world and evolution of new technology, meeting this information requirement becomes important. Human Resource managers need to be aware that the change in technology will not only increase the quality of employee information, but also will have a strong effect on the overall effectiveness of the organization (Shammy, 2012).

Describing Technological advancement, Mumford (2000), posit that it is the process of combining and reorganizing knowledge to generate new ideas. The development of technology has an impact on firm performance. Technological advancement comes from internal advancement (Pavitt, 1990), and internal advancement comes from employee capability. So there is a close relationship between technological advancement and employee performance. Technologies can only lead to increased productivity or improve performance when combined with other resources effectively by human resources or when done effectively, and use technology productively and ethically (Dauda & Akingbade, 2011).

Objectives of the Study

The general objective of this paper is to examine the effects of technological innovations on human resource management; the following specific areas of human resource management shall be examined;

i. The effects of ICT advancement on operational human resource management
ii. The effects of ICT advancement on relational human resource management
iii. The effects of ICT advancement on transformational human resource management

Hypotheses

H_{01}: ICT advancement does not have significant effects on operational human resource management in enterprises in Nigeria

H_{02}: ICT does not have significant effects on relational human resource management in enterprises in Nigeria

H_{03}: ICT does not have significant effects on transformational human resource management in enterprises in Nigeria

2. Review of Literatures

Information and Communication Technologies (ICT)

The concept of information and communication technologies has received numerous explanations in terms of its meaning. Oliver (1999) posits that ICT is the science that investigates the properties and behavior of information, the force governing the flow of information and the means of processing information for optimum accessibility and usability. The process includes the originations, collection, storage, retrieval, interpretation, dissemination and use of information. Obanya (2002) states that information and communication technologies is a broad term that has to do with the harnessing of process, the methods and the product of electronic communication related technologies and other related resources in today's knowledge driven society, for enhancing the productivity, the spread and efficiency of set programme activities geared towards the achievement of clearly defined goals. In the view of Tinio (2003), ICT stands for information and communication technologies and it can be defined as a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information. Examples of ICT according to Tinio includes radio, television, video, digital versatile device (DVD), telephone, satellite systems, management information systems, computer and network, hardware and software as well as the services associated with them, such as video-conferencing and electronic mail. The World Bank (2007) definition of information and communication technologies states that ICTs involves the use of hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information (voice, data, text, images) as well as related services. Osakwe (2012) asserts that information and communication technology can be defined as an electronic device for managing and processing information with the use of soft and hard wares to convert, store, manipulate, protect, transmit, manage, control and retrieve information for the enhancement and productivity of personal and organizational activities.

In the view of Scott (2002), information and communication technologies encompass a range of applications, communications and technologies which aid information retrieval and research communication and administration. These include: Internet access, electronic mail, CD-ROMS, telephone, online databases, library services and fax machines. Scott further stated that ICT has become a global phenomenon of great importance and concern in all aspects of human endeavour, spanning across education, governance, business, labour, market, shares, productivity, trade, agriculture, commerce and others. Yusuf (2005) is of the opinion that information and communication technology is an electronic application of computing, communication, telecommunication and satellite technology. Yusuf posited that the pervasiveness of ICT has brought about rapid change in technology, social, political and global economic transformation. The prevalence and rapid development of ICTs has transformed human society from the information technology age to the age of knowledge. In fact, ICTs are becoming natural part of man's daily life. This is to ensure that they participate fully in life of the contemporary information age and also to use it to accomplish their everyday task.

Human Resource Management

Armstrong (2009) states that human resource management is a strategic, integrated and coherent approach to the employment, development and well-being of the people working in an organization; it covers activities such as strategic human resources management, human capital management, corporate social responsibility, knowledge management, organization development, resourcing (human resource planning, recruitment and selection, and talent management), performance management, learning and development, reward management, employee relations, employee well-being and health and safety and the provision of employee

services. Stolt (2010) defined human resource management as a way of managing the organization's most important asset- the people who contribute to the company's success either individually or collectively- in a planned and strategic way. During the last decade, HRM has been adapting to various changes and improvements. One of them is technology which has greatly affected the way HRM departments in organizations work. The development of the Internet and other IT tools drive companies to utilize its possibilities in doing business and improving performance. Paauwe, Farndale and Williams (2005) said that the HRM function is subject to radical and dramatic change because of the implications of web- based organizing.

A look at the works of researchers like (Brooks 2006, Ferguson and Reio 2010, Grensing-Pophal 2008, Hurley-Hanson and Giannantonio 2008, and Reddick 2009), the following HR-related performance drivers can be seen as common: attract & hire a greater share of high performers, monitor the effects of new policies & programs and react swiftly to trends & results, drive member satisfaction, profits & long-term success, simplify administrative, ensure security of valuable information over antiquated paper formats, define organizational policies & procedures that serve to positively motivate workers, maintain learning & development activities that stimulate optimal task & contextual job performance, align employee activities with the needs of customers or clients, support advanced strategic decision-making tools. The improvements emerging from these performance drivers may include: free up time for critical management tasks, increased human resource processes/practices contribution to organizational outputs, attention to security and the necessity of "being prepared for anything", quick return to adequate performance levels.

Challenges of Human Resource Management in the ICT Era

Kamal & Ashish (2013), discussed the challenges of HRM in the ICT era as follows;

A. Challenges of HRM in Modern Management: Technological advances is a challenging task of adapting workplace to rapid technological changes which influence the nature of work and generate obsolescence. Advanced technology has tended to reduce the number of jobs that require little skill and to increase the number of jobs that require considerable skill, a shift we refer to as moving from touch labor to knowledge work. There is new working technology. In this situation organizations have to change it technology. New technology creates unemployment and in other hand, there comes scarcity of skilled manpower. Like this, technological change brings difficulties and challenges in organization.

Some of the HR changes induced by technological advancement include;

· Globalization
· Workforce Diversity
· Changes in political and legal environment
· Changes in the Economic Environment
· Mobility of Professional Personnel
· Revolution in Information Technology.
· Technological advances

Information Technology (IT) as a structural factor and instrument transforms the architect of organizations, business processes and communication, and is increasingly integrated into HRM. While IT has impacts on HR, at the same time managers, employees, customers and suppliers increase their expectancies for HR functions.

B. Challenges of Information technology on HR Function

· New skills required
· Downsizing
· Collaborative work
· Telecommuting
· Internet and intranet revolution
· Business environmental change
· Development of technology
· Service improvement

ICTs and Human Resource Productivity

One of the gurus in management, Peter Drucker, predicted that like it was the industrial revolution two centuries ago, ICTs would transform processes that were here all along. He further argued that ICTs has the potential to bring about total revolution like the railroad brought to Industrial Revolution thereby leading to the emergence of a totally new, totally unprecedented, totally unexpected development that transformed both the mental and economic geography of companies and communities. Continuing with the same line of argument, Drucker proffered that workers that would be the engine of economic growth will be those who can be categorized as "knowledge technologists", for example computer technicians and software designers. He asserted that these workers are as much manual workers as they are knowledge workers; in fact, they usually spend far more time working with their hands than with their brains. But their manual work is based on a substantial amount of theoretical knowledge which can be acquired only through formal education, not through an apprenticeship. He predicted that just as unskilled manual workers in manufacturing were the dominant social and political force in the 20th century; "knowledge technologists" are likely to become the dominant social and perhaps also political force over the next decades (Drucker, 2001). Thus, in terms of increasing effective management, just as electricity enabled development of the continuous production line processes, the decentralized availability of information through ICTs allows the reduction of hierarchical structures within firms and greater empowerment and capabilities for work teams and individual workers. ICTs can also transform a firm's relations with its customers, providing increased scope to tailor products to individual requirements. ICTs also allow more lean and timely inventory management. In other words, investment appears to have a greater beneficial impact if complemented by organizational changes, greater use of delegated decision-making and improvements in related workforce skills. Therefore, these benefits from ICTs to productivity can be categorized as tangible and intangible (Sheng, Nah, & Siau, 2005). The tangible benefits include the following:

• Reduced cost
• Improved productivity (i.e., amount of output produced per unit of input)
• Increased market share
• Savings in labor
• Increased consumer surplus (i.e., the accumulated difference between consumer demand and market price)
• Improved customer service quality
• Improved organizational efficiency
• Quicker response to customers
• Deeper knowledge and understanding of customers

On the other hand, the intangible benefits include:

- Improved decision-making ability
- Superior product quality
- Knowledge/information management and sharing
- Improved coordination/relationships with partners
- Other forms of competitive advantage

3. METHODOLOGY

This study took a descriptive survey approach. Data was sourced from 219 completed and returned five point likert scale questionnaire out of the 240 administered on the human resource management staff of twenty five selected firms in Abia state. The data gathered was subjected to both face and content validation and spearman rank correlation coefficient (r) was used to test the reliability of the data. Mann-Whitney (U) test was used to test the hypotheses with the aid of the 20.0 version of statistical package for social sciences (SPSS). The Mann-Whitney test is expressed mathematically as; $$U_1 = R_1 - \frac{n_1(n_1+1)}{2}$$

Where R_1 = Rank of the sample size, n_1 = sample size and U = Mann-Whitney test Statistic

4. RESULTS AND DISCUSSION

SPSS Output for Hypothesis One

Table 1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
VAR00001	20	21.8000	10.91884	3.00	40.00
VAR00002	20	3.0000	1.45095	1.00	5.00

Mann-Whitney Test

Table 2 Ranks

	VAR00002	N	Mean Rank	Sum of Ranks
VAR00001	1.00	4	2.50	10.00
	2.00	4	6.50	26.00
	Total	8		

Table 3 Test Statistics[a]

	VAR00001

Mann-Whitney U	.000
Wilcoxon W	10.000
Z	-2.309
Asymp. Sig. (2-tailed)	.021
Exact Sig. [2*(1-tailed Sig.)]	.029[b]

a. Grouping Variable: VAR00002

b. Not corrected for ties.

Discussion: From the test statistic table above, the value for Mann-Whitney (U) is 0.000 which is less than the 0.05 level of significance; hence, the null hypothesis is rejected. This simply implies that information and communication technology has significant effect on the operational functions of human resource management.

SPSS Output for Hypothesis Two

Table 4 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
VAR00001	20	21.8000	6.94793	10.00	33.00
VAR00002	20	3.0000	1.45095	1.00	5.00

Table 5 Ranks

	VAR00002	N	Mean Rank	Sum of Ranks
VAR00001	1.00	4	2.50	10.00
	2.00	4	6.50	26.00
	Total	8		

Table 6 Test Statistics[a]

	VAR00001
Mann-Whitney U	.000
Wilcoxon W	10.000
Z	-2.337
Asymp. Sig. (2-tailed)	.019

Exact Sig. [2*(1-tailed Sig.)]	.029[b]

a. Grouping Variable: VAR00002

b. Not corrected for ties.

Discussion: From the test statistic table above, the value for Mann-Whitney (U) is 0.000 which is less than the 0.05 level of significance; hence, the null hypothesis is hereby rejected. This simply suggests that relational functions of human resource are significantly affected by information and communication technology.

SPSS Output for Hypothesis Three

Table 7 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
VAR00001	20	21.9500	9.02322	8.00	39.00
VAR00002	20	3.0000	1.45095	1.00	5.00

Table 8 Ranks

	VAR00002	N	Mean Rank	Sum of Ranks
VAR00001	1.00	4	2.50	10.00
	2.00	4	6.50	26.00
	Total	8		

Table 9 Test Statistics[a]

	VAR00001
Mann-Whitney U	.000
Wilcoxon W	10.000
Z	-2.309
Asymp. Sig. (2-tailed)	.021
Exact Sig. [2*(1-tailed Sig.)]	.029[b]

a. Grouping Variable: VAR00002

b. Not corrected for ties.

Discussion: From the test statistic table above, the value for Mann-Whitney (U) is 0.000 which is less than the 0.05 level of significance; hence, the null hypothesis is hereby rejected. This simply suggests that differences in workforce skill set can enhance the competitiveness of multinational firms

Conclusion

Over the years, the approach, process and functions of human resource management have received attention of researchers. However, in the most recent, there appears to be a change from the traditional human resource to an ICT driven integrated human resource process and function that tend to make easy employee's data automation and management. It has also promoted employees self service, thereby creating a dynamic workforce in the organizations. This paper concludes that ICT has significant effect in the integration and performance of operational, relational and transformational human resource management; therefore, top management in organizations in Abia state should embrace ICT in their pursuit of effective and efficient human resource management system.

Recommendations

In order to maximize the contributions of ICT to the effective management of human resource, this paper recommends that;

i. ICT skill training should be made a continuous aspect of employees training and development program. This will help update employees on ICT driven innovations in human resource management

ii. Organizations should have home e-HRM programmes that addresses their peculiar needs instead of adopting any kind of e-HRM which does not confer strategic and cost benefits to the organization

iii. Top management of firms in Nigeria should leverage ICT to reduce financial, time and management error cost in the process HRM.

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