

## Human Resource Information Systems and Operational Performance of Food and Beverage Companies in Rivers State, Nigeria, Nigeria

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**Abstract:** *This study examined the relationship between human resource information systems (HRIS) and operational performance of food and beverage manufacturing companies in Rivers State, Nigeria, Nigeria. The study adopted a cross-sectional research design with structured questionnaire as the primary for data collection. The population of the study was 93 employees of 6 food and beverage manufacturing companies in Rivers State, Nigeria. The sample size of 75 was determined using calculated using the Taro Yamane's formula for sample size determination. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient with the aid of Statistical Package for Social Sciences version 23.0. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The study finding showed that there is a significant relationship between human resource information systems (HRIS) and operational performance of food and beverage manufacturing companies in Rivers State, Nigeria, Nigeria. The study concludes that the adoption and utilization of human resource information systems would go a long way in establishing preferred operational outcomes within the food and beverage manufacturing companies in Rivers State, Nigeria. It was thereafter recommended that the utility of HRIS in the measurement of performance should focus on driving correspondence between information systems and the activities or operations of the organization in such a way that facilitates feedback and an effective monitoring of systems*

**Key words:** *Human Resource Information Systems, Operational Performance, Performance Measurement, Operational Efficiency, Flexibility and Reliability*

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### INTRODUCTION

Global competition especially within the manufacturing industry has produced more choice for consumers and increased the uncertainty in organizations, within both developed and

underdeveloped contexts, offering strong implications for organizations and their operations. The study by Sanchez and Perez (2005) indicated that uncertainty had substantial impact on the flexibility of operations, and in that manner influencing organizational survival and overall performance. Thus, the operational performance of the organization is critical and key towards building a more robust organization and ensuring it thrives in the midst of uncertainty and change (Evans & Lindsay, 2011).

Operational performance may be expressed as the use of differentiated skills of the operational functions of the enterprise in relation to rivals, in order to gain competitive advantage (Corbett, 2008; Wild, 2000). Key factors in increasing operational performance are cost, quality, flexibility and delivery speed and these are expressed or reflected in the efficiency, flexibility and reliability features of the organization's operations. Various studies have been made on the relationship between environmental factors and operational process and performance. Previous studies (Desai, 2008; Alfaro, Ortiz & Poler, 2007) have put forward that environmental dynamism has an important role in the relationship between the operational and general performance (Corbett, 2008). The studies have showed that globalization increases dynamism in the environment, obliges firms to differentiate and when correctly adapted to the conditions of globalization, operational processes can increase operational performance (Evans & Lindsay, 2011).

Within the context of business and competition today, organizations have realized that human resources are their greatest capital for the growth of the organization. The process of growth and development without human involvement is meaningless because human is the target and also means of achieving progress. (Gupta, 2000; Ball, 2001). A strong base however for human resource effective control and function is the application of information technology to the management and monitoring of human resource activities and behaviour. This is as the traditional HRM style fails to catch up with such rapid changes spurred on by globalization.

While the traditional style mainly focuses on supportive personnel activities for an organization, for example, collecting employee information, monitoring individual performance, and implementing organization policies, it unfortunately offers only a passive approach towards the execution of responsibilities and functions, without any substantial anchoring on the technological changes and development apparent within the environment or context of the organization. Therefore, there comes a demand for the fusion of HRM actions and information technology in a way that outlines the business position, formulates the corresponding management strategy on human resources to improve service features, and act as a strategy partner with top management in driving the effectiveness and performance of the organization (Ngai & Wat, 2006; Henderickson, 2003).

Today, information technology has shown continuous development (Hajizade Moghadom, & Vajdi Dastgerdi. 2010). Technology and HRM have a wide range of impact upon each other and therefore human resource professional should be eligible to adopt technologies that allow the re-engineering of the HR action, be prepared to maintain organizationally and work project changes caused by technology, and be able to maintain a proper managerial climate for innovative and knowledge-based organizations (Bamberger & Meshoulam, 2000). Information and communication technologies (ICT) -an umbrella term for technologies combined with the internet, new media (social media), mobile communication and computers- allow the organization to renovate their internal processes, structures, core competencies and relevant

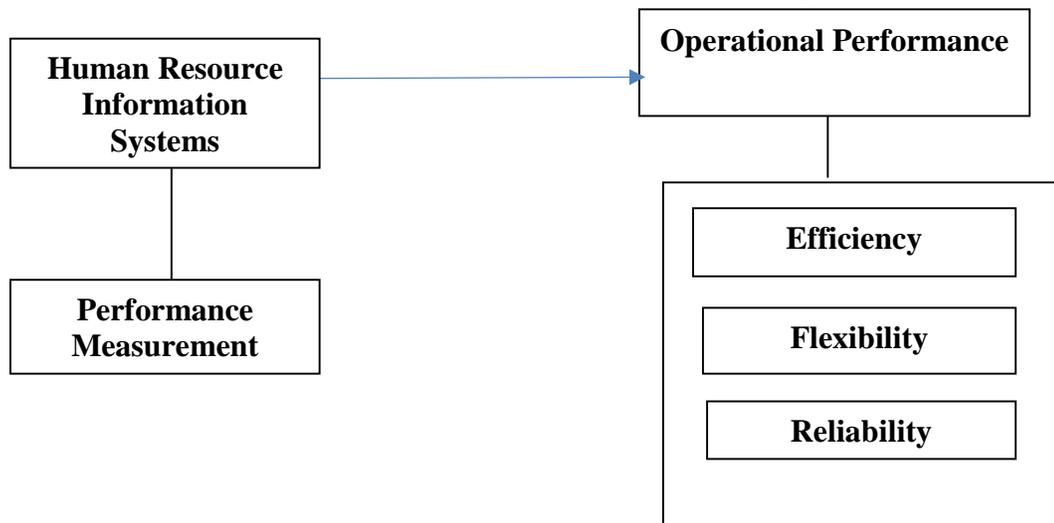
markets on a global scale. Information and communication technologies (ICT) are running throughout each sector of the economy and have implications for almost every enterprise (Bamberger & Meshoulam, 2000).

Information Technology (IT) in HR function has created a new way of HR processes applications. This IT application in HR processes includes virtual recruitment, E-learning, and self-services HR (Ball, 2001). These have also aided features or functions such as data monitoring, record keeping and performance measurement. These applications also removed the potential obstacles encountered by organizations when trying to reach the pool of candidate (Bamberger & Meshoulam, 2000). Before the internet, and the utility of the human resource information technology, HR recruiters had to rely on print publications like as-newspaper; magazine but Information technology has made recruitment process more effective and efficient (Salem, 2003).

While studies (Evans & Lindsay, 2011; Sanchez & Perez, 2005; Wild, 2000) on operational performance have been dominated by studies which have emphasized on the leadership and traditional HRM actions of the organization in building more efficient, flexible and reliable operational features, little has been done to address the recent adoption and implications of the human resource information systems features on outcomes of operational performance. While previous studies have provided evidence of learning – particularly that anchored on the context on the effectiveness of operational systems and features there is yet still scarce research on the role of organizational learning in the development of human resource information technology, and the implications of such for the operational performance of the organization. This study therefore investigates the relationship between human resource information system and operational efficiency of food and beverage manufacturing companies in Rivers State, Nigeria.

Furthermore, this study was also guided by the following research questions:

- iii. What is the relationship between performance measurement and operational efficiency of food and beverage manufacturing companies in Rivers State, Nigeria?
- iv. What is the relationship between performance measurement and operational flexibility of food and beverage manufacturing companies in Rivers State, Nigeria?
- v. What is the relationship between performance measurement and operational reliability of food and beverage manufacturing companies in Rivers State, Nigeria?



***Fig.1 Conceptual Framework for the relationship human resources information system and operational performance.***

***Source: Desk Research (2020)***

## **LITERATURE REVIEW**

### **Theoretical Foundation**

#### **Knowledge-Based View Theory**

This study adopts the knowledge-based view as the theoretical foundation for the investigation of the relationship between human resource information systems and operational performance. Nowadays firms must compete in a challenging context that is being transformed by globalization, technological development, increasingly rapid diffusion of new technology and the development and use of knowledge (Laszlo & Laszlo, 2002). Firms are required to do things differently in order to survive and prosper. Specifically, they must look to new sources of competitive advantage and engage in new forms of competition. Besides knowledge being an important resource in itself, the efficient allocation and use of other resources requires relevant knowledge.

Not all forms and kinds of knowledge are equally important for acquiring competitiveness. Liu (2001) described the nature of commercial knowledge, which goal of which is not to find the truth, but to ensure performance. A firm is represented by a series of different resources. Knowledge, as one of the resources, is an important element for company performance. Moreover, knowledge, as a part of human capital, is considered to be the most important factor for selecting and managing crucial resources to implement the desired strategy to achieve performance (Bergman, Liechtenstein & Brush 2001). Managers should be aware that the unique and relevant knowledge is usually linked to the human resource of the organization. This is why the firm is extremely vulnerable to the degree that its workers are inclined to move to another company. Employees are transferable assets, and the organizations have to do their best to retain the employees with high knowledge capabilities.

#### **Human Resource Information Systems**

Human Resource Information System (HRIS) is one of the most important Management Information Systems, which contributes to human resource administration functions of an organisation. Aptly described by Kavangah et al., (2007), HRIS is a computer system used to acquire, store, manipulate, analyse, retrieve and distribute information related to human resources. Besides hardware and software, it also includes people, forms, policies, procedures and data. Modern HRIS can help organisations by automating most HR planning functions. HRIS becomes an important strategic tool since it collects, manages and reports information for decision-making.

Fully integrated organisational HRIS ought to interface with other systems enabling and enhancing the communication between departments such as payroll system with accountancy system. Since HRIS deals with employees' personal data, which is sensitive, it should ensure

data security while transferring information. An HRIS is capable of identifying trends, evaluating and managing costs, comparing the organisation with other competitive organisations and issue reports (Florkowski, 2006). New HRIS trends seem to have an important effect on HR planning, embedding new technology with organisational goals and objectives. Features such as the Enterprise Resource Planning System (ERP), when linked with the HRIS sub system, provides a distinct competitive advantage to an organisation over competitors. HRIS is classified into two types according to their usage: “unsophisticated” and “sophisticated”. Payroll and benefits administration, employee absence records keeping electronically are listed as “unsophisticated”. Use of IS in recruitment and selection, training and development, HR planning and performance appraisal, is classified as “sophisticated”.

### **Performance Measurement**

An information system can help to operate performance measurement or management, generating forms, analysing and reporting on the result of performance reviews showing the distribution of people with different degrees of potential or performing at different levels, and highlighting individuals with particular skills or special promise. This system can be linked to others to provide an integrated basis for creating and implementing human resource management policies.

Expert systems are developed through a process of knowledge engineering which starts from a knowledge base containing facts and a body of expertise (‘heuristics’, or rules of thumb) about the use of those facts. These ‘rules’ enable decisions to be made on the basis of factual information presented to the computer. Thus, a fact may be information on employee turnover during the last three years, and the rule of thumb may be the method by which turnover could be predicted over the next three years. These facts and rules are processed by what is termed the ‘inference engine’, which solves problems or makes predictions, and the results of this process are presented to the user in the ‘user interface (Ball, 2001).

### **Operational Performance**

Operational performance refers to the ability of a company in reducing management costs, order cycle time – meet orders, improving raw material efficient use and distribution capacity (Heizer et al., 2008). Operational performance has an important meaning to firms, it improves effectiveness of production, creates high quality products, customers are more satisfied, leading to increased revenue and profit for companies (Kaynak, 2003; Kaynak and Hartley, 2008; Ou et al., 2010). Operational performance is the backbone of organizational performance (Salem, 2003). Organizational performance is the capability of an organization to fulfil its mission through governance, excellence and dedication to meeting its goals and objectives. Operational performance on the other hand is the performance of an organization against its set standards such as waste reduction, productivity, cycle time, environmental responsibility and regulatory compliance (Lakhal et al, 2006; Reed et al, 2000).

The operations of a firm should be efficient and effective. Effectiveness is the expanse to which customers’ needs are fulfilled, while efficiency is defined as a measure of how economical firms’ resources are employed. In order to accurately enhance accessibility and evaluation of operational performance, the correct measurement systems should be planned, developed and implemented. Performance measurement networks are hence developed in order to monitor and

maintain operational control. Operational Control is the process that ensures an organization is able to pursue action with the aim of achieving the overall goals and objectives. Achievement of these goals is a manifestation of excellence in organizational performance (Prajogo & Brown, 2004; Hubbard, 2009).

### **Operational Efficiency**

The concept of operational efficiency which is of recent origin signifies the quality of skill and degree of success attained in the management and performance of various activities of an enterprise. Efficiency in job has been a matter of deep concern to many social scientists hailing from as diversified disciplines as industrial, engineering, sociology and social psychology (Heizer and Render, 2006). When there are any organized activities social or economic, all related parties seek to achieve the object or objectives behind these activities with the minimum expenditure or cost, in other words getting the maximum output from available resources that are what can be called operational efficiency. These activities or operations include many sub-activities and their policies and many techniques to perform the main object. So operational efficiency is the result achieved and that required construction of chain of relationships and involves quality of performance in given time periods (Heizer & Render, 2006).

### **Operational Flexibility**

The second operational performance measure concerns being flexible, which includes an organisation's ability and the extent to which it can adjust (what it does, how it does and when it does) to changes to respond to customers (Slack et al, 2009). As an example, large fast-food franchises which are designed to offer high volume and low-cost products may not be able to offer the flexibility required to offer full menu options to its customers as they do not customise to specific customer needs (Samson and Singh, 2008). Flexibility includes the capacity to produce a wider range of services and products, respond to any seasonal demand factors, meet shorter lead times, and cope with customers' specification changes during the process (Hill, 2005).

Finally, improving on speed prompts an organisation to be able to shorten the time between the service request and delivery of the service, with the frequency and at the times requested by customers (Hill, 2005). In today's competitive environment, time is a valuable tool; thus, businesses that are able to respond faster than their competitors are more likely to gain a competitive advantage. Manufacturers are discovering the advantages of time-based competition (Russell and Taylor, 2008). Competing on speed, however, requires an organisation characterised by fast moves, fast adaptation and tight linkages (Russell and Taylor, 2008). At the same instance, the speed with which an organisation can provide new products or service development is an important capability because the environment is constantly changing (Tidd & Bessant, 2009)

### **Operational Reliability**

The third operational performance objective is reliability, which suggests that an organisation's processes consistently perform as expected over time. That is, customers are satisfied by organisations that provide services that do not fail over a period of time or with services that are delivered as agreed (Kuo and Zuo, 2003). For systems, reliability can best be described as the

likelihood that a system will not fail to perform its function as designed within a given time horizon and environmental conditions (Kuo and Zuo, 2003). When customers are evaluating the characteristics of a product, they may find that it performs differently from its intended purpose or malfunctions after a period of time (Wild, 2000). Thus, reliability is essential in the performance of operations and is closely related to the satisfaction of customers with the use of services or products

### **Human Resource Information Systems and Operational Performance**

Maintaining or improving the level of operational performance has been recognised as one of the critical issues that organisations are struggling with. Thus, they adopt innovations that are allegedly better able to accomplish this goal (Hernandez and Jimenez, 2008; Herring and Roy, 2007). It has been recognised that improved work features are useful in the improvement of performance of a business faction and that investments in new technology geared towards enhancing work features will increase a firm's efficiency and effectiveness (Badescu and GarcesAyerbe, 2009; Hernandez and Jimenez, 2008).

DeLone and McLean (2003) define the effectiveness of an implemented information system as the extent to which the system adds to the achievement of organisational goals and benefits. The organisations that pay more attention to the achievement of operational effectiveness rather than the enterprise information system effectiveness alone are more likely to get the greatest benefits from their investment and to achieve improvements in operational performance (Badescu and GarcesAyerbe, 2009). There is, however, a great concern due to the high rate of failures of implemented technological innovations such as enterprise information systems (Hernandez and Jimenez, 2008).

The study postulates the following hypotheses to be tested:

**H<sub>01</sub>:** There is no significant relationship between performance measurement and operational efficiency of food and beverage manufacturing companies in Rivers State, Nigeria

**H<sub>02</sub>:** There is no significant relationship between performance measurement and operational flexibility of food and beverage manufacturing companies in Rivers State, Nigeria

**H<sub>03</sub>:** There is no significant relationship between performance measurement and operational reliability of food and beverage manufacturing companies in Rivers State, Nigeria

### **METHODOLOGY**

The study adopted the cross-sectional survey in its investigation of the variables. Primary data was sourced through structured questionnaire. The population for this study comprises of 93 managers (including supervisors) from the 6 registered food and beverage companies in Rivers State, Nigeria. The sample size of 75 was determined using the Taro Yamane's formula for sample size determination. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring coefficients above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

**DATA ANALYSIS AND RESULTS**

**Bivariate Analysis**

The Spearman Rank Order Correlation coefficient is calculated using the SPSS 21.0 version to establish the relationship among the empirical referents of the predictor variable and the measures of the criterion variable.

Table 1 Performance measurement and the measures of operational performance

		Performance	Efficiency	Flexibility	Reliability	
Spearman's rho	Performance	Correlation Coefficient	1.000	.792**	.806**	.719**
		Sig. (2-tailed)	.	.004	.000	.001
		N	273	273	273	273
	Efficiency	Correlation Coefficient	.792**	1.000	.829**	.608**
		Sig. (2-tailed)	.004	.	.034	.000
		N	273	273	273	273
	Flexibility	Correlation Coefficient	.806**	.829**	1.000	.765**
		Sig. (2-tailed)	.000	.034	.	.001
		N	273	273	273	273
	Reliability	Correlation Coefficient	.719**	.608**	.765**	1.000
		Sig. (2-tailed)	.001	.000	.001	.
		N	273	273	273	273

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Field survey, 2020

- i. There is a significant relationship between performance measurement and operational efficiency of food and beverage manufacturing companies in Rivers State, Nigeria where rho = 0.792 and Pv < 0.05.
- ii. There is a significant relationship between performance measurement and operational flexibility of food and beverage manufacturing companies in Rivers State, Nigeria where rho = 0.806 and Pv < 0.05
- iii. There is a significant relationship between performance measurement and operational reliability of food and beverage manufacturing companies in Rivers State, Nigeria where rho = 0.719 and Pv < 0.05

The results indicate that performance measurement significantly impacts and contributes towards operational performance of the manufacturing firms. The evidence suggests that performance measurement has a substantial impact on all three measures such as operational efficiency, flexibility, and reliability. This suggest that the dimension is essential and critical towards enhancing operational features and processes in the organization. In this vein, it is evident that performance measurement is essential and improves the evidence of operational performance in the manufacturing firms. Thus, all related hypotheses are rejected.

**DISCUSSION OF FINDINGS**

The results from the test of hypotheses revealed that there is a significant positive relationship between human resources information system and operational performance of food and beverage manufacturing companies in Rivers State, Nigeria. The evidence corroborates Shani and Tesone (2010) who state that HRIS is currently perceived as one of the important factors influencing the role of the HR function and the adoption of HRIS is likely to promote HR to the anticipated

position of strategic partner in the organization. Evidently, a new era made its debut as the HR function and its system support became strategic partners in managing change and measuring performance within an organization (Lori & Elaine, 2002; Targowski & Deshpande, 2001). Successful HRIS supports the planning and implementation of managerial key processes in the organization such as executive decision making, technology selection, organizational reporting structures as well as performance feedback through measurement and control. Hence, HRIS measurement systems have become an active tool to help employees engage more easily with the organization and each other thereby steering greater productivity and business execution (Beadles, Lowery & Johns, 2005).

## **CONCLUSION AND RECOMMENDATIONS**

The findings of this study affirm to the significance of dimensions such as data monitoring, record keeping and performance measurements as predictors of operational performance of food and beverage manufacturing companies in Rivers State, Nigeria. Also, organizational learning is observed to contribute significantly as a moderator towards enhancing the relationship between human resource information systems and operational performance. The findings support the position that human resource information systems positively impact on operational performance. Thus, this study concludes that the adoption and utilization of human resource information systems would go a long way in establishing preferred operational outcomes within the food and beverage manufacturing companies in Rivers State, Nigeria.

Based on the foregoing conclusion, the following recommendations are suggested.

Utility of HRIS in the measurement of performance should focus on driving correspondence between information systems and the activities or operations of the organization in such a way that facilitates feedback and an effective monitoring of systems.

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