Assessment of Information Technology on Organizational Performance of Nigeria Bottling Company (NBC) Plc Maiduguri Plant

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Abstract
This research assessed the level of use of information technology (IT) on organisational performance of Nigerian Bottling Company (NBC) plc Maiduguri plant. Were Primary data was collected using a well-structured questionnaire administration. The population for this research comprised of the entire NBC Maiduguri plant *staff. The research used two stage random sampling techniques to sample out 50 respondents from the Plant staff. The research revealed that majority of the respondents had various IT devices at their disposal to enable them perform their duties efficiently and effectively. The research also indicated that IT usage is at over 90% with reference to organisational performance at* Nigerian *Bottling Company Maiduguri plant. The research therefore recommends that organizations both private and public should embrace IT tools, devices and services so as to have competitive edge and improve service delivery to their customers. The research further recommends that more research should be done on challenges facing information technology with a special reference on social media usage in privately own organizations in Nigeria.*

Keywords: *Information technology (IT), Organizational performance, Nigeria bottling company,*

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1 Introduction

Information Technology (IT) is clearly considered as a key growth area in this century, specifically, in a dynamic and highly competitive business environment which requires utilizing advanced IT tools to improve efficiency, cost effectiveness, and deliver high quality products and services to customers (Allen and Morton, 2004). IT is also considered as a tool of marketing, contacting customers and looking for possible customers, as well as presenting IT services as distinguished potential services for customers (UNDP, 2001; Werthner and Klein, 2005)

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Since the early years of the 20th century, the world has been experiencing a revolution known as information technology. Some consider it to be the most fascinating development since the industrial revolution around the mid 18th Century (Tom, 1991). This revolution is changing our daily lives at home and at work, in shops and banks, in schools, colleges and universities. It is changing the way people think, communicate and behave. Today, the world has become a global village with the internet, mobile phones and satellite networks shrinking time and space, bringing together computers and communications; resulting in new ways of communication, processing, storing and distributing enormous amounts of information (UNDP, 2001). Advancement in chip, satellite, radio, and optical fiber technology have enabled millions of people around the world to connect electronically regardless of national or international boundaries. This explosion in connectivity is the latest and the most important wave in the information revolution (Evans and Wurster, 1997).

Organisations are increasingly using information technology to develop solutions to business problems, to improve both the efficiency and effectiveness of the decision-making process, to enhance productivity and service quality, to achieve dynamic stability, and compete for new markets (Attewell and Rule, 1984; Molloy and Schwenk, 1995; Boynton, 1993). According to Cerere (1993) organizations have always sought and adopted technologies that enhance efforts of their manpower in production and management. Indeed he noted that although it has evolved over a considerable period of time, information technology has emerged as an important tool in management of organizational operations.

Information Technology Information technology refers to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies. According to Daft (1997) IT can be defined as the hardware, software, telecommunications, database management, and other information-processing technologies used to store, process, and deliver information. Information technology is commonly used to assist managers with direct control over business functions, personnel and other resources. As managers oversee resource coordination and allocation, it can be difficult to coordinate business functions across various projects. Information technology is one of the key innovations that is frequently implemented to assist in this process (Hobday, 2000). Peansupap and Walker (2005) maintain that IT is often implemented as it is believed to facilitate communication, improve integration, enhance productivity and service delivery (Bjork, 1999).

As organisations grow and change, they depend more and more on information technology for their survival (Feeny and Willcocks, 1998). Companies today implement and use information technology

to find solutions to business problems, to improve management decision-making, enhance productivity and quality, and compete for new markets in our global and aggressive business environment (Porter and Millar, 1985). Moreover, IT can be seen as a powerful force that opens exciting opportunities for organisations to achieve their missions and goals in an effective way. Therefore, leaders in organisations must obtain an overall appreciation of the potential of IT and link the acquisition and utilization of IT to the organizational mission (Hacker and Saxton, 2007).

Organisation Performance Information technology is at the core of many business functions, operations, products and services. Today, organisations worldwide spend over 50% of their new investment funds on IT and related communications. How organisations manage these large investments is of critical importance to organisational efficiency and effectiveness. Further, IT is often the link between the business model and the critical drivers of success. Many organisations have been unsuccessful with their IT-based investments because of poor alignment of IT with the business.

The concept of performance has always been present in management literature covering various aspects such as efficacy, efficiency, competitiveness, relevance and financial viability. Marmouse (1997) highlighted that; organization's performance represents the manner in which the company is organized to reach its objectives and the way it manages to reach them. Over the years, Nigerian Bottling company plc Maiduguri plant continued to grow as an organization and this involved a change in its operations and processes. There was tremendous growth in the number of technological devices used by staff at Nigerian Bottling company plc Maiduguri plant and investments on data management and communications systems. There was a need to find out if that was contributing positively to the organizational performance hence the essence of the research. Anticipated changes in organizational performance involve reduction in the duration taken in processing critical tasks and elimination of repetitive tasks resulting in higher productivity and efficiency as well as better and quality service delivery. Nigerian Bottling company plc were the makers juices, soft drinks and table water viz: Coca cola, Fanta, Sprite, Chivita five alive, Eva etc.

Information technology researchers have empirically demonstrated that IT investments enhance firm's productivity, management capabilities and comparative advantage (Griffith, 1999). Studies in the developed world have attested that given the proper infrastructure, IT can be an enabler for socioeconomic development. Examples given from the developed world where significant IT investments have had major impacts include increasing the United States gross domestic product (GDP) by 7.8%, UK by 8.0%, Singapore by 8.3% and Australia by 8.4% (Kamel, Rateb and El- Tawil, 2009).

Illustrations of studies done on IT's impact on performance included; a research of an information services firm by Pulley and Braunstein (1984), which found an association with increased economies of scope; another was by Diewert and Smith (1994) which provided an interesting case research of a large Canadian retail firm. According to their accounting frame-work, the distribution firm experienced an astounding 9.4% quarterly multi-factor productivity growth, for six consecutive quarters starting at the second quarter of 1988. They argued that “these large productivity gains were made possible by the computer revolution which allowed a firm to track accurately its purchase and sales of inventory items and used the latest computer software to minimize inventory holding costs”. While Loveman (2001) found no evidence on performance increase from IT investments; Weill (1990) found that transactional IT had a positive impact on

The objective of this research is to determine the level of information technology use at the Nigerian Bottling company plc Maiduguri plant. It is hoped that the research findings would be as the base upon which to review organization performance and necessary improvements identified.

2 Literature Review

2.1 IT and Organisations

In organizations there are those factors which influence firms' IT adoption including anticipated benefits and barriers. An organization will adopt the new technology if it perceives there will be savings of inputs, general efficiency, gains, higher flexibility and improvement of product quality (Brynjolfsson and Hitt, 2006). A firm will often fail to adopt the new technology if it perceives that it is faced with unfavorable financial conditions, human capital restrictions (e.g. lack of IT specialists and multi-skilled workers) , information and knowledge barriers and managerial barriers like resistance to the new technology within the firm (Heinz, 2002).

2.2 IT and Business Processes

The recent information technology developments have enormous implications on the operation, structure and strategy of organisations. According to (Evans and Wurster, (2007) the competitiveness of future economies will, to a great extent, depend both on the development and application of these technologies. The proliferation of the World Wide Web forced most organizations to rethink the way they do business and how they can reengineer their business processes. As businesses can now interact more efficiently, competent businesses become digital and networked, facing a whole range of fresh opportunities and challenges (Dennis, 2007).

According to Bocij (2003) technology has already revolutionized a wide range of functions including business functions, external environment monitoring, communicating with partners and with consumers at large. Clear strategic goals and commitment are prerequisites for the development of an appropriate e-Commerce strategy and the development of web sites and other technological solutions. The emergent mobile technologies and mobile commerce are expected to change drastically a number of industries and to force organisations to reconsider their strategic management (Evans and Wurster, 2007).

2.3 The Role and Use of IT in Organisations

Within the international community, the collective technical infrastructure of hardware, software, and telecommunications is often referred to as information and communications technology (ICT) which can be seen as an extended synonym for IT. Many organisations perceive IT as an important tool to optimize operations and conduct information exchanges.

Information technologies can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Porter, 2001). IT can be a means of facilitating communication and the exchange of information and/or facilitating knowledge sharing between various departments and functions in the organization. In this light IT can act as an enhancer of collaboration and a networking tool amongst employees, customers and partners because it removes the barriers to real-time communication and effective information sharing (Scott, 2001).

IT helps organisations innovate through fusion of new technologies with society and business thus enabling the creation of new knowledge and discovery (Diem, 2007). IT is being used by organizations to improve performance, communication, motivate employees, increase competitiveness,

improve market dynamics, and repositioning the company against its competitors facilitating entry into new markets (Hagen, 2010).

2.4 IT and Productivity - Productivity Paradox

Productivity is the fundamental measure of a technology's contribution. While major success stories exist, so do equally impressive failures (Kemerer and Sosa, 1991; Schneider, 1987). The lack of accurate quantitative measures for the output and value created by information technology has made information systems manager's job of evaluating investments particularly difficult. Academics have had similar problems assessing the contributions of new technology, and sometimes this has been interpreted as a negative signal of its value.

In the 1980s and early 1990s, disappointment in information technology was chronicled in articles disclosing broad negative correlations with economy-wide productivity and information worker productivity. Several econometric estimates also indicated low IT capital productivity in a variety of manufacturing and service industries. More recently, researchers began to find positive relationships between IT investment and various measures of economic performance.

Strassmann (1985) reported disappointing evidence in several studies. In particular, he found that there was no correlation between IT and return on investment in a sample of 38 service sector firms: some top performers invested heavily in IT, while others did not. In his later book (1990), he concluded that "there is no relation between spending for computers, profits and productivity". A research by Parsons, Gottlieb and Denny (1990) estimated a production function for banking services in Canada and found that overall; the impact of IT on multifactor productivity was quite low between 1974 and 1987. They speculated that IT had positioned the industry for greater growth in the future. Similar conclusions were reached by Franke (1987), who found that IT was associated with a sharp drop in capital productivity and stagnation in labor productivity, but remained optimistic about the future potential of IT, citing the long time lags associated with previous "technological transformations" such as the conversion to steam power. Harris and Katz (1991) and Bender (1986) looked at data on the insurance industry from the Life Office Management Association Information Processing Database. They found a positive relationship between IT expense ratios and various performance ratios although at times the relationship was quite weak. Alpar and Kim's (1991) research of 759 banks indicated cost reducing effects of IT. A 10% increase in IT capital was associated with 1.9% decrease in total costs. IT contribution to output and productivity is documented in several important studies, but whether or not this output growth is beneficial to profits and market value is not yet clear. In addition, some practitioners and researchers still believe that "the full power of the computer in increasing national productivity has not yet unfolded." In this sense, the productivity paradox still awaits explanation.

2.5 IT and Performance of Organisations

In the 1960's and 70's, information technology was widely employed by many firms mainly for achieving routine clerical and administrative activities such as processing data related to book keeping and accounting activities (Bird and Lehrman, 1993). It was used as a monitor of thefirm's internal and external environment; in other words, as a support factor for the other organisational system components (Blili & Raymond, 1993).

However, the cost, the distribution,and the fact that it was generally applied to only simple tasks in its early stages discouraged its application to strategic uses in areas such as enhancing the organisation's position against competitors, moving into new markets, and providing managers with better information for effective decision making.

The advancement in the technological field along with other advancements have enhanced the economies of information technology and greatly expanded its applications (Bird & Lehrman, 1993). Alex (2015) in his research impact of information technology on organizational performance: case of population services Kenya was he determine the level of use of information technology and its relationship with organisational performance at PS Kenya. a descriptive survey was used. Primary data was collected using a semi-structured questionnaire. The population for this research comprised of the entire PS Kenya staff which was 438. The questionnaire was administered electronically for data collection, out of which 311 respondents responded to the research resulting in a response rate of 71 percent which was considered as a sufficient representation of the organisation. The research findings revealed that majority of the respondents had various IT company devices at their disposal to enable them perform their duties. The research further revealed that there was a positive relationship between the level of IT use and organisational performance at Population Services Kenya. The results indicated that IT use explains 82.4% of organisational performance at PS Kenya.

Today, information technology has become not only a tool to process data and record transactions, but also a competitive weapon that can change an industry's structure. Galliers (1994) suggested that because of the rapid pace of technological advances and the impact of information technology on the changing competitive environment, organisations are forced to critically evaluate their management of information and technology resources in order to achieve their strategic objectives. One of the strongest evidences of the impact of IT has been illustrated as coming from the firm- level analysis that is confirmed to a number of developed countries (OECD, 2003). Most of these studies use a combination of growth accounting methods and econometric models to examine samples of industries and firms. For example, (Gretton, 2002), researching firm-level data from the Australian Business Longitudinal Survey, found positive and significant links between the use of IT and growth in both manufacturing and service industry. (Brynjolfsson and Hitt, 2003), investigating US firm-level data, proved that IT has a solid impact on productivity. (Pilat and Wolfl, 2004) examined the role of ICT-producer and key ICT-consumer sectors in explaining overall productivity growth in OECD (Organisation for Economic Co-operation and Development) countries; they found that the impact of ICT-producer sectors is most significant in Finland, Ireland, and Korea whereas ICT-consumer sectors in some countries, remarkably US and Australia, had an impressive growth in the second half of the 1990s. (Hempell, 2004) analyzed comparable panel data of the Dutch and German firms in the service industry and found that ICT capital deepening and innovation have complementary impact on productivity.

It is widely accepted among many authors and researchers in the organisational field that information technology has a significant effect on the performance of the organisation's activities (Bhattacherjee and Hirschheim, 1997; Morris and Westbrook, 1996; Porter and Millar, 1985). For example, information technology applications can be used to improve the level of efficiency of administrative functions in an organisation and to enhance the effectiveness of managerial activities. These applications also can be used as tools to impose better organisation on tasks and to provide better information to managers. Zuboff (1988) pointed out that information technology applications are strongly altering the way in which production operations are carried out in a variety of industries and thus using information technology to create and acquire a competitive advantage.

2.6 Theories

The research will rely on theoretical models to determine the impact of information technology on organisation performance. The research will therefore rely on; Model of the organisation (Leavitt, 1965) and the Technology Acceptance Model (Davis et al., 1989).

2.6.1 The Technology Acceptance Model

Emerging information technology cannot deliver improved organizational effectiveness if it is not accepted and used by potential users. Technology Acceptance Model (TAM) is one of the most successful measurements for computer usage effectively among practitioners and academics (Davis, 1989). TAM is consistent with (Rogers, 1983) theory on diffusion of innovation where technology adoption is a function of a variety of factors including; relative advantage and ease of use.

Two particular beliefs are addressed through TAM; perceived usefulness and perceived ease of use. Perceived usefulness is defined as being the degree to which a person believes that the use of a system will improve his performance (Davis, 1989). Perceived ease of use refers to the degree to which a person believes that the use of a system will be effortless (Rogers, 1983). TAM attempts not only for prediction but also for explanation to help researchers and practitioners identify why a particular system may be unacceptable and pursue appropriate steps. This research is based on the model of the organisation (Leavitt, 1965). He suggested that an organisation consists of four interrelated components: structure, task (strategy), people, and technology. People refer to individuals working in the organisation and; Technology can be defined as the tools, techniques, and actions used to transform organisational inputs into outputs (Daft, 1995). This research focuses on the information technology used on the organisation which is part of the technology component, and organisational characteristics.

3 Methodology

3.1 The Research Area

The Nigerian bottling company Plc (NBC) was incorporated in November 1951, as a subsidiary of A.G. Leventis Group with franchise to bottle and sell Coca- cola products in Nigeria. Production began in 1953 at a bottling facility in Ebute-metta, Lagos. Nigerian bottling company (NBC) operates eight (8) plants in Nigeria. Their operations are major purchasers of sugar, bottles, labels, marketing materials and services. The Maiduguri plant is one of the eight plants in Nigeria. Other seven (7) plants are: Ikeja plant in Lagos state (1953), Port-Harcourt plant in Rivers state (1973), Asejire plant in Oyo state (1983), Abuja plant in FCT (2006), Challawa plant in Kano state (1982), Benin plant in Edo state (1970), and Owerri plant in Imo state (1982).

The Maiduguri plant started operations in 1983, as a strategic plant in the North-east region of Nigeria. Maiduguri plant was commissioned by the former military governor of Borno state, Col. Abdulmumini Aminu. The plant produces and distributes Coca-cola, Fanta, Sprite and Schhweppes and other product categories.

The plant responsible for the supply of RGB and PET to four (4) states in the region made up of Yobe, Gombe, Adamawa and Taraba (NBC, 2020).

3.2 Research Design

This research project adopted a descriptive survey design. Descriptive surveys are used to describe a behavior of a given subject. The impact of information technology on organizational performance was a cross-sectional research as it sought to describe data and characteristics about the population or phenomenon being studied.

3.3 Population

The population targeted for the research comprised of the entire staff of Nigerian Bottling company (NBC) plc Maiduguri plant.

3.4 Data Collection

The research made use of primary data which was collected through a questionnaire which was administered to the respondents. The Questionnaire had two sections, the first part captured demographic information of the respondent and the second part entailed the use of Information technology. The questionnaire has no personal information of the respondents.

3.5 Data Analysis

The research objective was to assess the level of used information technology on organizational performance. Data collected from the research used descriptive statistics like frequency distributions and percentages.

4 Results Analysis and Discussions

4.1 Introduction

This section presents analysis and findings of the research as set out in the research methodology. The results presented were on used of information technology on organisational performance. In respect of the Nigerian Bottling company (NBC) plc Maiduguri plant.

4.1.1 Distribution of Respondents by Designation

In order to understand the respondents' responsibilities, the respondents were asked to indicate their designation. Table 4.1 shows the distribution of respondents by

4.1.1 Distribution of Respondents by Designation

Table 4.1 Distribution of Respondents by Designation:

Designation	Frequency	Percentage
Director	2	4
Senior Management	8	16
Middle Management	10	20
Subordinate	30	60
Total	50	100

Source: Field Survey, (2020).

The results in Table 4.1 show that majority of the respondents (60%) were subordinates at NBC Maiduguri Plant while 4% were directors.

4.1.2 Highest Level of Qualification

The respondents were asked to indicate their highest level of qualification. Table 4.2 distribution of respondent's by highest level

Table 4.2 Distribution of Respondents Qualification:

Designation	Frequency	Percentage
Director	2	4
Senior Management	8	16
Middle Management	10	20
Subordinate	30	60
Total	50	100

Source: Field Survey, (2020).

Table 4.3 Distribution of Respondent's by Work Experience

Years of service	Frequency	Percentage
Less than 5 years	5	10
5-10 years	5	10
11-15 years	25	50
16-20 years	10	20
Above 20 years	5	10
Total	50	100

Source: Field Survey, (2020).

Years of service Frequency Percentage distribution: Less than 5 years 10%, 5–10 Years 10%, 11–15 Years 50%, 16-20 Years 20%, and above 20 Years 10%.
From the findings in Table 4.3, most of the respondent (60 %) had worked at NBC Maiduguri Plant for more than 10 years. Thus, most of the respondents had the experience to respond to the issues in the questionnaire.

4.1.4 Distribution of Respondents by Gender

Table 4.4 Distribution of Respondents by Gender:

Gender	Frequency	Percentage
Male	37	74
Female	13	26
Total	50	100

Source: Field Survey, (2020).

The respondents were asked to indicate the gender and the findings are presented in Table 4.4. Table 4.4 Distributions of Respondents by Gender Frequency Percentage Male 74% while Females 26%. From Table 4.4, it is evident that majority of the respondents who participated in the research were males.

4.1.5 Distribution of Respondents by Age

The respondents were asked to indicate their age. This was for general information and was not a direct objective of the research. Findings are presented in Table 4.5.

Table 4.5 Distribution of Respondents by Age:

Age	Frequency	Percentage
Below 20 years	3	6
21-30 years	7	14
31-40 years	25	50
41-50 years	10	20
Above 50 years	5	10
Total	50	100

Source: Field Survey, (2020).

From the findings in Table 4.3, most of the respondent (46 percent) had worked at NBC Maiduguri Plant for less than 5 years, 33 percent for 5-10 years, 16 percent for 11-15 years, while 4 percent had been working at NBC Maiduguri Plant for 16-20 years. Thus, Most of the respondents had the experience to respond to the issues in the questionnaire.

4.4 Level of IT Usage at NBC Maiduguri Plant

The research sought to find out the various IT devices the respondents had at their disposal to perform their tasks and also the extent to which they used the various IT devices and systems.

Table 4.6 Information and technology (IT) device(s) with staff

Devices	Frequency	Percentage
Mobile phone	7	14
Desktop computer	27	54
Laptop	10	20
Ipad/ Tablet	5	10
Others	1	2
Total	50	100

Source: Field Survey, (2020).

Table 4.6 shows that majority of the respondents (37, 74%) had desktop computer and laptops computers at their disposal to enable them perform their duties effectively and efficiently. The research further reveals that (12, 24%) of the respondents uses Mobile phones, and iPads / tablets at their disposal to enable them to perform their different duties.

The research also finds out the level of use of IT devices and systems at NBC Maiduguri Plant are well utilized.

5 Conclusions

The research found that, Nigerian Bottling company (NBC) Plc Maiduguri plant had adopted and used IT to a large extent and that IT had significance on the company

performance. Over the years Nigerian Bottling Company (NBC) Plc Maiduguri plant; was able to achieve, monitor and evaluate organisational targets accurately while incorporating them at planning stages. IT usage had enhanced service delivery standards; improved customer's satisfaction and improved productivity of employees and increased flexibility in majority of organisations functions.

The research also confirmed that there exists a data management, accountability, target achievement and service delivery.

6 Recommendations

From the findings the research recommends that:

- Ø Organizations should have more self-service enabled services, automate all critical processes to achieve higher efficiency.
- Ø Embrace IT tools and services so as to have competitive edge and improve service delivery to customers' reliability and control in the organization.
- Ø Organizations should also build in house capacity to handle IT systems policies and procedures that attempt to retain IT staff and develop backup plans for Nigerian Bottling Company (NBC) plc Maiduguri plant.
- Ø Further research should be done on challenges facing information technology with a special reference on social media usage in privately own organizations in Nigeria.

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