

### Analysis of the Impact of Information and Communication Technology on Nigeria Bottling Company's Organisational Performance

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**Abstract:** Information and communication technology has long been recognized as a critical component of any business's ability to maximize profit, ensure customer happiness, and reduce costs. The researcher, therefore, examine the analysis of the impact of ICT on Nigeria Bottling Company's organisational performance. The study used a descriptive survey research design. Data was gathered from Nigeria Bottling Company employees in South West states using a standardized questionnaire. The study's participants were 3,746 NBC employees. Godden (2004) formula was utilized to determine the sample size of 385. The respondents' level of expertise of the research topic necessitated the utilization of a purposeful sampling technique. The data collected was analyzed using multiple regression and correlation analysis. The studies demonstrated that information and communications technology (ICT) had a substantial impact on NBC's organisational performance. Furthermore, with an R2 value of (0.743), internet access has a favorable impact on organisational performance, and factors statistically significant at the 95 percent confidence level and sig 0.000, there is a substantial association between cloud computing and organisational performance. Based on the findings, the study stated that there is adequate evidence to prove that ICT adoption has a substantial impact on NBC's organisational performance.

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#### 1. Introduction

The globe has been undergoing a revolution known as information communication technology over the last few decades (ICT). People's daily lives at work, organisation's, schools, colleges, universities even at home are being transformed by this revolution (Ali, Ibrahim, Mohammed & Bizi, 2020). The international economy, as well as business processes, have progressed from lower to higher stages of growth, transitioning from simpler to modern and complicated production procedures (Agbolade, 2011).

Business organisations, particularly those in the manufacturing industry, operate in a complicated and competitive environment marked by shifting conditions and a highly unpredictable economic climate, with ICT at the forefront of the change curve, transforming how people think, interact, and act (Agbolade, 2011). With internet access, cloud computing, mobile phones, satellite networks, and space, the world has become a global village, bringing together computers and communications, resulting in new means of communicating, processing, storing, and distributing massive amounts of data (UNDP, 2001). Advances in chip, satellite, radio, and optical fiber technology have enabled millions of individuals all over the world to connect electronically across national and international borders (Onobrakpeya, Nana & Odus, 2018).

In this century, ICT is clearly viewed as a vital growth area, particularly in a dynamic and highly competitive economic landscape that necessitates the use of advanced ICT tools to enhance efficiency, cost effectiveness, and generate excellent products and services to customers (Allen & Morton, 2004). ICT is also used for marketing purposes, such as contacting consumers and identifying future customers, as well as presenting ICT services as distinct potential offerings for customers (UNDP, 2001; Werthner & Klein, 2005). Organisations are increasingly turning to information and communication technology (ICT) to solve business challenges, increase decision-making efficiency and effectiveness, boost productivity and service quality, attain dynamic stability, and compete for new markets (Peansupap & Walker, 2005).

Over the years, business organisations have continued to perform and grow as a result of changes in their operations and processes; hence, organisational performance includes shorter processing times for critical tasks and the elimination of repetitive tasks, resulting in increased productivity and efficiency, as well as better and more consistent service delivery. The number of electronic gadgets utilized by organisations has increased dramatically, as have investments in data management and communications systems. ICT has become unavoidable, and it is now considered

as the only way for businesses to compete in an increasingly competitive environment (Benerjea & Dawinji, 2011). Nonetheless, many organisations have invested time and resources to improve their services and products, while the most significant shortcoming in the organisation today is a widespread failure on the part of senior management to recognise the importance of ICT and incorporate it into their strategic plans (Agbolade, 2011).

There was a need to find out if the tremendous growth in technology devices use by business organisation contribute positively to the various aspects of performance concept; competitiveness, relevance, efficacy, efficiency and financial viability, to name a few. Despite the fact that many studies have been conducted on the impact of ICT on organisational performance (Adan & Reuben, 2020; Okeke, 2021; Ali et al 2020; Onobrakpeya et al 2018), there are few studies in Nigeria that investigate the impact of ICT on manufacturing industry performance with a focus on Nigeria Bottling Companies. As a result, additional research is needed to fully comprehend the importance of ICT in manufacturing industries and to provide better insight to industry decision-makers. With reference to Nigeria Bottling Companies, this study aims to evaluate the relationship between information and communication technology and organisational performance. Also, to see if internet access and cloud computing have any good impact on organisational output. The broad objective of this study is analysis of the impact of ICT on Nigeria bottling company's organisational performance, while the specific objectives are to: examine the impact of internet access on organisational performance. And determine the level of relationship between cloud computation and organisational performance.

#### 2. Literature Review

According to the United Nations Development Program, the information and communication technology (ICT) revolution is transforming the way people think, communicate, and behave in businesses. ICT continues to play an important role in making the world a smaller place (Olaoye, Olaofe-Obasesin & Akanni, 2019). In today's dynamic and competitive business world, information and communication technology (ICT) is critical in providing answers to corporate problems that maintain productivity, quality, stability, and competitiveness (Kariuki, 2015). ICT has a considerably broader definition, embracing almost all types of businesses. Manufacturers, retailers, banks, and publishers, as well as research institutions, medical institutions, law enforcement organisations, government agencies, and libraries, are all represented (Olaoye et al 2019).

Information and communication technologies (ICTs) are defined by Nwachukwu (2004) as the use of computers and other technologies for the capture, organisation, storage, retrieval, and transmission of data. In this context, ICT refers to the use of

electronic devices such as computers, telephones, the internet, and satellite systems to store, retrieve, and transmit data, text, images, and other types of information. American Library Association (1983) posit ICT as the use of computers and other technologies to acquire, organise, store, retrieve, and disseminate information. Computer's process and store data, whereas telecommunication technology provides information communication technologies that allow users to access databases and connect them to other computer networks in other locations

ICT has boosted economic activity by increasing production and has also changed the way businesses are run by affecting nearly every aspect of business operations, including customer data storage, process automation, product development, and communication and interaction with customers and suppliers. Organisations are utilizing technology to develop in today's global and dynamic competitive marketplace (Laudon & Laudon, 2012). ICT is a complex and heterogeneous mix of items, applications, and services used to produce, distribute, process, and change information, as was stated by Adewale and Akanbi (2012). Human resources and infrastructure, which are the foundational tools and means for assessing, planning, and controlling development, as well as accomplishing sustainable economic activities and growth, rely on ICT. To compete in the global market, a manufacturing company must upgrade and acquire ICT skills in its production processes in order to attain a high rate of worker productivity (Agbolade, 2011).

Internet Access: Individuals and organisations with internet access can use computer terminals, computers, and other devices to connect to the internet and access services like email and the World Wide Web (Hunt, 2015). Internet access is sold by internet service providers (ISPs), who use various networking technologies to deliver connectivity at a variety of data transmission rates (Hunt, 2015). Internet access as opined by Hobday (2000), is the process of users or businesses accessing to the internet via personal computers, laptops, or mobile devices. It is dependent on data signaling rates, and users may be connected at varying internet speeds (Hobday, 2000). Home, schools, companies, public areas, internet cafes, libraries, and other locations frequently give Internet connection. As posited by Raymer, (2009), there are several ways to get internet access: wireless, mobile, Hotspots, dial-up, broadband, DSL, satellite etc. Internet access has influenced people's perspectives and has become an important element of their political, social and economic life. The United Nations has acknowledged that allowing more people throughout the world access to the Internet will enable them to enjoy the benefits of the "employment, educational, political, social and economic opportunities" accessible on the Internet (Amir, 2011). One of the most critical elements in determining the extent of internet connectivity in a location is access to computers or smart gadgets. Internet connectivity, on the other hand, is not evenly spread within or between countries. Many countries and areas are separated by a digital divide. High-income

demographics, a high development index, and technical advancement are all linked to having good internet access (Hobday, 2000).

#### 2.1. Concept of Cloud Computation

The on-demand availability of computer system resources, particularly data storage (cloud storage) and computational power, without direct active management by the user is known as cloud computing (Montazerolghaem, Ahmadreza; Yaghmaee, Mohammad: Leon-Garcia & Alberto 2020). The word refers to data centers that are accessible to a large number of people over the internet. ESDS (2013) opined cloud computing as the usage of shared memory and storage facilities, as well as computation, on computers and servers that are networked through the Internet and follow the grid computing paradigm. Data is stored on services that can be wiped at any moment, from anywhere in the globe, with no need to install software or save data x. The Internet is used to access external files, applications and services-hence the reference to the Internet. The purpose of cloud computing is to enable consumers to take advantage of all of these technologies without requiring extensive knowledge or experience in each one. The cloud seeks to reduce expenses and allow users to focus on their main business rather than being hampered by IT issues (Hamdaqa, 2012). Virtualisation is the most embedded technology that are significant for cloud computing. Virtualization software divides a physical computer equipment into one or more "virtual" devices, each of which can be used and managed independently to perform computing tasks. Idle computing resources can be allocated and utilised more efficiently through operating system-level virtualisation, which essentially creates a scalable and efficient of several separate computing machines. Virtualisation gives the flexibility needed to accelerate IT processes while also reducing expenses by maximizing infrastructure use. Autonomic computing automates the process of provisioning resources on demand by the user. Automation minimises labour costs, speeds up the process and eliminates the risk of human error by minimizing user participation (Hamdaga, 2012). The types of cloud computing, as stated by Mell and Grance (2011), are private cloud, public cloud, and hybrid cloud.

#### 2.2. ICT and Organisational Performance

In today's competitive environment, a company's performance is crucial to its stockholders' and the economy's well-being. ICT has evolved into a competitive weapon, capable of modifying an industry's structure as well as a tool for processing data and recording transactions (Olaoye et. al, 2019). ICT can be utilized to boost the efficiency of administrative work and the efficacy of managerial activities in an

organisation. These programs can also be used to improve task organisation and offer managers with more information (Garcia-Sanchez & Garcia-Morales, 2018).

Many authors and researchers in the subject of organisation, believe that ICT has a substantial impact on the performance of an organisation's activities. (Okeke, 2021; Ali et al 2020; Onobrakpeya et al 2018; Bhattacherjee & Hirschheim, 1997; Morris & Westbrook, 1996). ICT is at the heart of company operations, functions, goods, and services, as Olaoye et al (2019) pointed out. On a daily basis, ICT and other forms of communication use a huge amount of investment capital. Given the link between business and success variables, how employees manage large sums of money invested in ICT is essential to the efficacy and efficiency of corporate operations in Nigeria.

#### 2.3. Model of the Organisation

Model of the organisation was propounded by Leavitt in 1965. The organisational model will serve as the theoretical basis for this research (Leavitt, 1965). As shown below in Figure 1, the model states that an organisation is made up of four interconnected components: structure, task (strategy), people, and technology. An organisation's structure can be characterized as its authority, communication and workflow mechanisms; the creation of an enterprise's basic long-term values, as well as the endorsement and commitment of resources to a plan of action intended to attain these corporate goals, can be refers to as the strategy of an organisation (Chandler, 1962); Individuals who work for an organisation are referred to as "people" while. Tools, techniques, and actions used to attain these business goals are referred to as technology. (Daft, 1997). According to Leavitt (1965), if one of the four components changes, the other three must modify as well. The fate of an organisation is determined by the interaction of these four components. This framework was chosen for this study because it addresses a number of significant topics that could help us gain a better understanding of the interaction between ICT and organisations. This research focuses on the impact of information and communication technology on the organizational performance of Nigeria bottling company, which is part of the technological component, as well as organisational characteristics.

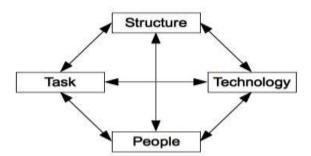


Figure 1. Model of the Organisation

#### 2.4. Empirical Framework

Salihu, Umar, Mathias and Njoku, (2021) investigated the adoption and use of information communication technology (ICT) on employee performance in Gombe state university. The study's goal was to see if there was a link between ICT usage and staff performance at Gombe State University. For this investigation, a descriptive survey method was used. A semi-structured (closed-ended) Questionnaire was used to collect data. The population for this study was the entire Gombe State University personnel, which totaled 2406 people, and a sample of 343 people was chosen using Yamane formula for sample size determination. The survey had 311 responses, which was deemed to be a sufficient representation of the university. According to the findings, Gombe State University had extensively adopted and exploited ICT, and ICT had a major impact on staff performance. The study therefore concluded that universities should improve on the deployment and Utilization of current ICTs and automate all critical administrative and academic processes to achieve higher efficiency in the university.

Daud et al. (2020) investigated the effect of ICT innovation policies, employee training, and skills management on the efficiency of service delivery in Kenyan private laboratories. A descriptive research design was adopted in this study. The study's targeted respondents were all 52 workers of Pathologists Lancet Kenya Limited, and it employed a purposive sample technique. Questionnaires were used to acquire quantitative data. Descriptive statistical approaches were used to analyze the data. The findings revealed that information and communication technology (ICT), as well as innovative policy, training, and staff skills, have a substantial effect on the efficiency of service delivery in private laboratory firms in Kenya. As a result, the study therefore concluded that, organisations should focus on ensuring prompt policies and legislative frameworks that are not only in line with modern technological realities and dynamics, but also expected to assist the structured development of ICT in the organisation in order to ensure maximum organisational development impact.

Similarly, Olaoye et al. (2019) assesses the impact of information technology on the performance of corporate organisations in Nigeria. The study is empirical because the primary source of data was a questionnaire, and the results were reported using averages, variances, and standard deviations. The target respondents are experts in the field of information technology, particularly in the state of Lagos. To achieve the primary goal of this study, the IT specialist was given 45 questionnaires, of which 40 were returned and analyzed using the one-way ANOVA technique. According to the findings of the study, information technology has a substantial impact on the performance of corporate organisations in Nigeria. As a result, the study concluded that business organisations must promote employee training and aggressively invest in IT to improve operational efficiency.

Ezekiel, Kenneth, Johnstone and Omwono, (2016) investigated the effect of information and communication technology on organisational performance in Unga limited Eldoret, Kenya. The study's goal was to determine the impact of ICT on Unga Ltd's performance in Eldoret. With a total of 65 people in the study, the management team, heads of departments, and employees of Unga Ltd, Eldoret were included. The data gathering instrument was a questionnaire. In order to analyze the data, descriptive and qualitative approaches were used. Tables were utilized to present the data. The findings from the study revealed that having ICT in place improves service delivery, increases quality service delivery, and boosts organisational performance. It was also discovered that ICT improves firm production, strengthens organisational infrastructure, and ensures that all systems operate properly and efficiently. As a result, the study indicated that information and communication technology (ICT) is an essential factor in company performance.

Wilson, Iravo, Tirimba and Ombui (2015) examined the effects of information technology on performance of logistics firms in Nairobi County. The logistics enterprises in Nairobi County were the target audience. Data was obtained from ten logistic industry providers in Nairobi. Based on the study methodology, a set of items was created and aggregated into four scales for measuring IT use in the workplace and three scales for measuring company performance. SPSS was used to analyze the data, and the results were presented in the form of tables and figures. Findings of the study revealed that more than half of the enterprises in Nairobi County do not use IT in their departments or service delivery, showing a low degree of IT utilization among logistic firms. This indicates that the components that are not addressed account for only 20.9 percent of the total. As a result, the study came to the conclusion that the four parameters had a significant impact on the performance of logistics companies in Nairobi County.

#### 3. Methodology

Descriptive research strategy was used in this study because it allowed the researcher to access cross-referencing data, independent confirmation of data, and a variety of alternatives. The information for this study came from two diverse perspectives: primary and secondary. A total of 3,746 Nigerian Bottling Company employees participated in the survey (https://rocketreach.co/nigerian-bottling-company-plcmanagement\_b5e4cdcaf42e6658).

Due to relative size of the study area and for the purpose of convenience, thorough investigation and cost consideration, the research area was restricted to Nigerian Bottling Companies in South West. Southwest Nigeria is one of the geopolitical zones in Nigeria with common weather conditions throughout the year, consisting; Ekiti, Ogun, Osun, Oyo, Lagos and Ondo. It is a Yoruba speaking area with various dialects within the same state. Nigeria's largest non-alcoholic beverage bottler, Nigeria Bottling Company (NBC) Plc, was founded in 1951 as a bottling subsidiary of the A.G. Leventis Group, and started producing Coca-Cola in 1953 at a bottling plant in the basement of the Mainland Hotel in Lagos. NBC has grown from one bottling plant to eight over the years, and the stock is now traded on the Nigerian Stock Exchange. The Ikeja factory in Lagos and the Asejire plant in Oyo state are both located in the South West of Nigeria. NBC was chosen because of its solid foundation for growth and profitability. The researcher limited the study to senior staff and management members of the organisations because the operation and the strategic management of information and communication is undertaken by senior and management employees of the organisations.

However, the sample size of this research was calculated using Godden (2004) sample size determination formula since the population of the study was large. As a result, 385 questionnaires were distributed. The questionnaire was the primary data collection tool for the study, and it was designed to be simple to understand and to elicit as well as analyze data. A content validity test was performed on the research instrument. Sampling technique that was used for this study is purposive sampling technique because of respondents' level of understanding of subject matter of research.

#### 4. Results and Discussion

#### 4.1. Test of Hypotheses

Hypothesis One: Internet access does not have a significant impact on organizational Performance

To validate the above hypothesis, the regression coefficient, model fit and analysis of variance were computed.

#### **Table 1. Model Summary**

				Std. Error of the	
Model	R	R Square	Adjusted R Square	Estimate	
1	.862a	.743	.742	2.21218	

a. Predictors: (Constant), Information Communication Technology

Source: Authors' computation, using SPSS version 25

Table 1 shows the model summary gives  $R^2$  value = (0.862). This shows Internet Access variables have positive impact on Organisational Performance in Nigeria bottling company. Thus, the models predicting 86.2% (Organisational Performance) of the variance in Internet Access enhances organisational performance; meaning that the internet access reflected in the Nigeria bottling company's models may predict 86 percent (Organisational Performance) of the variance in organisational performance.

Table 2. ANOVA<sup>a</sup>

	_	Sum of			_	~.
Mode	el	Squares	Df	Mean Square	F	Sig.
1	Regression	2947.668	1	2947.668	602.334	.000 <sup>b</sup>
	Residual	1017.899	383	4.894		
	Total	3965.567	384			

- a. Dependent Variable: Organisational Performance
- b. Predictors (Constant), ICT

Source: Authors' computation, using SPSS version 25

The level of organizational performance was significantly predicted by internet access variables, as shown in Table 2. Since the value of Ftab>Fcal, the overall regression model is extremely statistically significant in terms of its goodness of fit. F (1, 384) = 602.334, p < 0.05 F - statistical indicates that the whole regression model is highly statistically significant in terms of its goodness of fit. As a result, the null hypothesis is rejected. The study concluded that internet access has strong influence on organisational performance in the selected Nigeria bottling company, Nigeria

Table 3. Coefficients<sup>a</sup>

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	T	Sig.
1	(Constant)	1.249	.455		2.745	.007
	ICT	1.202	.049	.862	24.542	.000

a. Dependent Variable: Organisational Performance

Source: Authors' computation, using SPSS version 25

Table 3 is the coefficient table that shows how the Internet access (IA) influence or contributed to the prediction of the dependent variable which is organisational

performance (OP). The standardized coefficient showed that Internet access contributed 86.2% (positive) to the performance of NBC, and this is significant at P<0.05. This suggests that increasing the independent variable (IA) by one unit will result in a performance improvement of 0.862. Therefore, the study can be concluded that Internet access provided by the Nigeria Bottling Company's has contributed significantly to their performance.

## Hypothesis Two: There is no significant relationship between cloud computation and organisational performance

Table 4. Correlations Analysis measuring relationship between cloud computation and organisational performance

		Organisati onal Performan ce	Data Collection	Departme nt Data	Target Monitoring	Operation al Efficiency
Organisa tional	Pearson Correlation	1				
Perform	Sig. (2-tailed)					
ance	N	385				
Data Collectio	Pearson Correlation	.251	1			
n	Sig. (2-tailed)	.000				
	N	385	385			
Departme nt Data	Pearson Correlation	.412	.167	1		
	Sig. (2-tailed)	.000	.001			
	N	385	385	385		
Target Monitori ng	Pearson Correlation	.549	.241	.249	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	385	385	385	385	
Operatio nal Efficienc y	Pearson Correlation	.398	.301	.220	.218	1
	Sig. (2-tailed)	.000	.003	.002	.001	
	N	385	385	385	385	385
did. G	1	1 0011	1 (0 11			

<sup>\*\*.</sup> Correlation is significant at the 0.01 level (2-tailed).

Source: Authors computation (2022) using SPSS version 25

As shown in Table 4, the correlation result of the relationship between cloud computation and organisational performance of Nigeria Bottling Company. The result showed a r value of .549 (55%) between Target Monitoring (Cloud Computation) and Organisational performance. (Cloud computation has improved target monitoring and reporting significantly at Nigeria bottling company). This

denotes a significant relationship between the variables i.e., Cloud computation has improved target monitoring and reporting significantly at Nigeria bottling company relates to cloud computation up to 55%. A percent increase in cloud computation led to 55% increase in organisational performance in Nigeria Bottling c=Company. Result also showed that, the practice of cloud computation which has been able to increase market share level in the organisation has significant relationship with productivity. The r value between Department Data and Organisational Performance (Cloud computation has facilitated better management of departmental data needs) showing 0.412 (41%). This depicts a medium positive relationship between the variables, i.e., cloud computation has facilitated better management of departmental data needs led to significant increase in cloud computation by 41%. Operational Efficiency and Organisational Performance (Cloud computation has improved operational efficiency of employees at Nigeria bottling company) showed an r value of 0.398 (40%). This implies that the survival of Nigeria Bottling Company which is based on the operational efficiency of employees at Nigeria bottling company relates to cloud computation up to 40%. A percent increase in operational efficiency led to 40% increase in organizational performance. All the variables are statistically significant at 99% and 95% confident level. This implies that there is significant relationship between cloud computation and organizational performance. The study therefore rejects the null hypothesis and accepts the alternate hypothesis that there is significant relationship between cloud computation and organizational performance.

#### 4.2. Discussion of Findings

The primary goal of this research work is to look into the impact of information and communication technology on the Nigeria Bottling Company's organisational performance. As part of the process of achieving this goal, some analysis based on the data collected in accordance with the study's hypotheses was carried out.

The findings revealed that Internet Access variables in a Nigerian bottling company have a positive impact on organisational performance. Meaning that internet use has improved project planning and execution activities in reaching customers, that internet access has facilitated better communication with beneficiaries and service delivery partners, that the internet is used to collaborate with others/team, and that internet access has led to more formalization of communication and procedures.

Moreover, the findings on whether if relationship exist between cloud computation and organisational performance of Nigeria Bottling Company, the study discovered that cloud computing and organisational performance had a significant relationship. Meaning that the manufacturing companies should make use of cloud computation to improve the data collection process by field officers, improve target monitoring and reporting and to facilitate better management of departmental data needs.

#### 5. Conclusions and Recommendation

The impact of ICT on organisational performance is investigated in this research work. On the basis of the literature, two information and communication technology variables, internet access and cloud computing, were examined. The impact of these two ICT made up of; internet access and cloud computation were used against organisational performance. In summary, the study suggested that the application of the internet improved the planning and execution of operations of Nigeria Bottling Company projects in reaching their customers and encouraged good communication with their benefactors and service delivery partners. In addition, cloud computation improved data collection process by field officers, improved target monitoring and reporting and it facilitated better management of departmental data needs. This conclusion supports studies like; Salihu, Umar, Mathias and (Njoku (2021); Olaoye et al (2019) and Ezekiel, Kenneth, Johnson and Omwono (2016).

The following recommendation was made based on the conclusion and findings:

- i. Organisations should embrace internet access so as to have effective planning, execution and better communication in reaching its customers and beneficiaries.
- ii. More so, Organisations should perhaps establish in-house capability to handle cloud computation so that the data collection process by field officers, as well as monitoring and reporting, can be improved to support better data management.

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