

## ICT ADOPTION AND EMPLOYEE PERFORMANCE IN DRUG MANUFACTURING COMPANIES IN ENUGU STATE

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### **ABSTRACT**

*The study examined the effect of Information and communication Technology on employees' performance in drug manufacturing companies in Nigeria with a focus on selected drug manufacturing industries in Enugu state. Three drug manufacturing Companies in Enugu were randomly selected for this study namely; Juhel Nigeria plc. A.C. drugs Ltd and MedNuel Pharmaceutical Company. The research is aimed at finding out the impact of ICT, ICT tools, and the main benefits that drug manufacturing companies can accrue from the application of ICT to the management of its employees. The research method adopted for the study was the survey research method. Hypotheses were tested using the chi-square statistical tool. The findings revealed that the use of ICT has significant positive effect on employees' commitment in the studied organisations  $X^2(4, n = 192) = 234.81, P = 0.05$ ; there was significant positive effect of ICT on average time for completion of work in the organisations studied  $X^2(4, n \sim 192) = 245.55, P = 0.05$ ; the use of ICT has significant positive effect on employees' effectiveness in these three organisations.  $X^2(4, n = 192) = 116,80; P = 0.05$  and the use of ICT has significant positive effect on employees' efficiency in the three organisations;  $X^2(4, n = 192) = 45.13 P = 0.05$ . The study concluded 'that the use of ICT*

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*had significant positive effect on employees' performance and it was recommended that management of the companies should improve the commitment of their workers by providing them with the necessary ICT tools needed to carry out their duties, they should give attention to the time of completion of the tasks given to them, improve the performance of their employees by training and re-training them on the use of ICT in the discharge of their duties.*

## **1. INTRODUCTION**

The world has experienced important changes and advancement due to the huge spread of the Internet occasioned by Information Communication Technologies (ICT). According to Castells (2019), digital technologies have infused all facets of the economy and society since the eruption of interactive and mobile communication technologies in the first decade of the 21st century. In support of this, Mahanta & Das, (2019) stressed that information and communication technologies (ICTs) have fundamentally altered all facets of human endeavors. Discussions on both academic and policy circles on the effect of information technology on the labour market and organizational performances have been on for some times now. According to Chukwueke and Onuoha, (2019). Efficient and effective ICT application is required for efficient work performance and service delivery. The proportion of Pharmacists that use computers in their practice has increased over the years. The advent of the internet has further widened the scope of services that the Pharmacist can offer. The use of ICT has many advantages for the Pharmacist and the patients including cost savings, convenience, accessibility and improved privacy and communication.

In today's global and dynamic competitive environment, organizations are leveraging on technology to innovate. ICT innovation is becoming more and more relevant, mainly as a result of three major trends; intense international competition, fragmented and demanding markets and diverse and rapidly changing technologies Wheelwright and Clark (2018). ICT on the other hand refers to a wide range of computerized technologies that enables communication and the electronic capturing, processing, and transmission of information. These technologies include products and services such as desktop computers, laptops, hand-held devices, wired or wireless internet, business productivity software, data storage and security, network security etc. Ashrafi. & Murtaza. (2018). ICT contributes to economic activities through increase in aggregate productivity which will cause improvement on economic growth and development (Laudon & Laudon, 2016). Tormay (2015) explains that companies in pharmaceutical industry need to implement Big Data and to maximize the value of its initiatives in order to strengthen the R&D projects and to satisfy patient special need.

For transparency in business processes and product tracking, the pharmacist must maintain records which can be assessed in the case of auditing e.g. poisons disposal books with appropriate records signed (digital and hard copy), contact details of patients who purchase POMs from the practice (for tracking or product retrieval in case of recall), insurance documentation/ payment records and patient case notes for collaborative practices etc.

Information and communication technology (ICT) is a tool that can be used in cost and quality control enhancement of efficiency (Houghton, 2002). The ICT revolution is having dramatic effects on practices within the pharmaceutical industry and on the delivery of health services. Technology is an important factor by helping to reduce the distribution costs and run the channel successfully, along with its channel management and physical delivery of the goods.

Adewoye & Akanbi (2012) stated that ICT is a complex and heterogeneous set of goods, application and services used to produce, distribute, process and transform information. ICT is reliable to human resources and infrastructure which constitute the fundamental tools and means of assessing, planning, managing development and for achieving sustainable economic activities and growth. Technological development has changed the majority of wealth creating work from physical effort based to knowledge effort based and enable manufacturing organization to know the value of ICT to their firms by offering business opportunities over competitors in the market. For a manufacturing organization to survive in the global competition or market, organization must improve and acquired ICT skills in the production processes so as to achieve high rate and improvement on workers' productivity. (Agbolade, 2018).

Information and communications technology (ICT) is an extended term for information technology (IT) which stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information (Frey,2017).

Gurari (2019) defines ICT as a combination of computer hardware, software and telecommunication devices such as telephone system, modem, router, optic cables, satellite communication system etc. Murray (2018) points out that ICT is an extended term for information technology (IT) that include the integration of telecommunication devices such as telephone line, wireless signals, computer hardware and software which encompasses storage device and audiovisual systems that ensure access, storage and dissemination of information. Adeyinka (2016) opines that the goal of every information systems, based in any organization is to improve performance on the job and this performance is only achieved when ICT is accepted and used warmly by the concerned employees in organizations. Information and communication technology benefits the business world by allowing organizations to work more efficiently and to maximize productivity. Faster communication, electronic storage and the protection of records are advantages that ICT can have on an organization.

Shola (2016) opines that in business, people look for ways to do more work in a shorter period. Information and communication technology improves a company's efficiency by developing automated processes to take off burden from the employees. In turn, employees are free to work on other things while the computer runs their reports, creates queries, tracks projects and monitor finances. Akintola (2018) states that ICT gives the employees remote access to their company's electronic network, so that they can work from home or on the road. This accessibility allows the employees to increase their productivity because they can still get work done, even when they are not physically present in the office. ICT is essential to the business world, and information and communication technology gives the organization the sources it needs to communicate quickly

and effectively. The ICT department can hook the employees up with email, video conferencing equipment and internal chat rooms, so that they can always have an efficient way to conduct business and communicate among themselves.

The inevitable consequence of not adopting ICT in an organization is that the employees could feel demoralized and they may not be committed to their work. This is because ICT has been proven to make work easier, faster and with better quality. Therefore, when employees do not have ICT at their disposal, they are likely not to be committed to their work as they may see every work to be laborious.

Another consequence of not adopting ICT in an organization is that the average time for completion of work may be higher. This is because ICT has equally been proven to reduce the time for accomplishment of task. Long distance communication is one area where ICT has made a profound impact on workplaces. Businesses used to employ fax machines, surface mail and the telephone in the past. Today, email, SMS, and various chat software tools have become the principal modes of business communication. Also, the use of video conferencing is on the rise, thus reducing the need for physical travel.

Furthermore, another consequence of not adopting ICT in an organization is that it could lead to decline in employee productivity. Word processing, spreadsheets, digital presentations and other office productivity software have become so commonplace that their use has become routine, and this has completely transformed office work. Office software is now becoming integrated with other productivity and decision making tools that any organization that does not adopt ICT may experience a decline in employee productivity.

The impact of the introduction of ICT becomes apparent in changes in work patterns, qualifications and decision-making procedures. Most businesses depend on employees with strong computer skills. Supervisors identify computer skills required for employees to perform their duties. In the pharmaceutical industry in Nigeria, there is much competition because there are many entrants in the industry and events happen very fast with much competition. We have now entered an era when almost every part of our existence is affected by technological innovations due to globalization and evolution of the knowledge economy. Gate (2016) states that the internet is a tidal wave, it will wash over nearly all industries, drowning those who do not learn to swim in its waves. It is based on this background that this study examined the effect of ICT adoption on employee performance in pharmaceutical companies in south East Nigeria.

### **1.1 Statement of the Problem**

One of the biggest challenges in pharmaceutical practice is the ability to collect and interpret the data that are available in the area. The information is useful in deciding trends, significant changes in prescription pattern, development of new or emerging diseases, need for important new services, etc. Collection of these data is not a fad in pharmacy but an important regulatory function and a must for every customer-centric practice/ business. By effective utilization of computer technology, pharmaceutical industries increase production by eliminating non-value-adding steps, reduce costs and improve the quality of drugs. Computers do not only maintain the record of raw material but are helpful in planning the future production of drugs.

It has been argued by some scholars (Bloss, 2019 and Mckinsey, 2017) that the reason for revolution in ICT is not primarily to enhance work productivity but to also ensure that the employees have some ease in carrying out their activities. Ologbo & Sofian (2012) observed that it will only make sense, if there is a balance between the work and life of the employees whom the ICT is meant to serve. In this era of rapid technological advances, people spend considerable amounts of money on technology to increase productivity in almost all organizational structures

across the world. However, whether this investment really results in efficient output is a big concern for not only policymakers but also investors but what are the consequences of not adopting ICT in an organization? The inevitable consequence of not adopting ICT in an organization is that the employees could feel demoralized and they may not be committed to their work. This is because ICT has been proven to make work easier, faster and with better quality. Therefore, when employees do not have ICT at their disposal, they are likely not to be committed to their work as they may see every work to be laborious.

While these observations have been made, there has been little research evidence to examine how the ICT has impacted the performance of the employees in pharmaceutical industries. It is based on these backdrops that this study examined effect of ICT adoption on employee performance of drug manufacturing companies in Enugu State.

### **1.2 Objectives of the Study**

The broad objective of the study was to examine the effect of Information and communication Technology on employees' performance. Specifically, the study tried to ascertain the extent to which the use of ICT affects employees' commitment; determine the extent to which the use of ICT affects average time for completion of tasks; identify the extent to which the use of ICT affects employees' effectiveness and evaluate the extent to which the use of ICT affects employees' efficiency.

The following null hypotheses were formulated to guide the study

- i. There is no significant effect of the use of ICT on employees' commitment
- ii. There is no significant effect of the use of ICT on average time for completion of work
- iii. There is no significant effect of the use of ICT on employees' effectiveness
- iv. There is no significant positive effect of the use of ICT on employees' efficiency

## **2. REVIEW OF RELATED LITERATURE**

Information and Communication Technology (ICT) is an extended term for information technology (IT), which stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middle ware, storage and audio-visual systems, which enable users to access, store, transmit and manipulate information . Edoho (2016) conceptualizes information technology as the term that describes an organizations computing and communication infrastructure, including computer systems, telecommunications, networks and multimedia software and hardware.

Information and communication technology is also seen as the use of electronic machines and programs for the processing, storage, transfer and presentation of information. It encompasses many technologies such as computers, software, networks and even telephone and fax machines. The purpose of ICT is to facilitate the exchange and management of information and has a lot of potentials for the information process component of any organization. Akunyili (2019) posits that information technology, is a term which encompasses the notion of the application of technologies to information handling (generation, storage, processing, retrieval, dissemination etc.

A number of studies carried out a study on the effect of ICT on employees' commitment in the manufacturing industry in New Jersey, revealed significant positive effects on employees' commitment in the manufacturing industries.

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. Technological advancement is important factor for influencing the improvement of performance. Most of the studies have repeatedly shown a positive relationship between a firm's technological advancement and performance, and concluded that technological advancement is important for employee performance.

Sadiq (2017) carried out a study on effect of ICT on employees' commitment in the pharmaceutical industry with a population of 137 workers using the survey method of research and questionnaire as the major instrument of data collection. Regression method was used for the analysis and it was found that ICT has a significant positive effect on employees' commitment in the pharmaceutical industry.

Many companies assess their employees' performance on an annual or quarterly basis in order to define certain areas that need improvement. Performance is a critical factor in organizational success. Many business personnel directors assess the employee performance of each staff member on an annual or quarterly basis in order to help them identify suggested areas for improvement. A Learning Management System can be a major influence in boosting employee performance by helping lower the training costs and increase the training effectiveness. You will be able to assign specific training to the employees who need it most, track when it has been completed, and have automated reporting to show you how well the course information was retained.

The findings of an investigation by Ahmed (2018) on the effect of ICT on average time for completion of task in the telecommunication industry revealed that ICT has a significant positive effect on the average time for completion of tasks in the telecommunication industry.

An investigation by Jamieson Burnett, Finger, & Watson, (2008) on the extent ICT affects employee effectiveness in the public sector, revealed that ICT affects employee effectiveness in the public sector to a large extent. In a related study conducted by Abubakar (2019) in Lagos state on the effect of ICT on employees' effectiveness in the Brewery industry, a population of 234 workers was studied using the survey method of research and questionnaire as the major instrument of data collection. The E-view statistical tool was used in the analysis and it was found that ICT has a significant positive effect on employee productivity of workers in the Brewery industry.

## **2.1 Theoretical Framework**

Several theories on information and communication technology have been conceptualized but this study adopted Theory of Reasoned Action

As a well-known social psychology theory, Theory of Reasoned Action by Fishbein and Ajzen (1975) explains an individual's behavior based on his or her behavioral intention, which is influenced by his/her attitude toward the behavior and perception of the subjective norms regarding the behavior. The basic assumption of TRA is that people consciously determine whether they engage in or do not engage in a certain behavior. In this sense, the adoption and use intentions are usually conceptualized as a major outcome variable that is influenced by various independent variables. TRA has been used in ICT adoption and use research as a fundamental theoretical framework, and it also has been combined with other theories and models. Both attitude and subjective norm were found to be important determinants of peoples' intentions to adopt and use ICTs. Attitude was found to have a significant influence on the intention to adopt and continue to use ICT. Regarding the subjective norm, previous studies found that subjective norm influences not only the behavioral intention but also other constructs including satisfaction.

### **3. METHODOLOGY**

This study used survey research design. Data for this study were obtained from primary source of data. The population of the study was 375 while the sample size of 194 was determined using the Taro Yamane's formula. The major instrument of data collection was the questionnaire. The data collected were presented using tables, frequencies and percentages. Hypotheses were tested using the chi-square statistical tool.

### **4. RESULTS**

The findings on research question one revealed that the use of ICT has significant positive effect on employees' commitment in the three organisations studied. The statement was confirmed to be true in the test of hypothesis one. The evidence is shown in the calculated value (234.81) which is greater than the critical value (9.49). This is in line with the empirical review conducted by Scott (2017) on the effect of ICT on employees' commitment. It was found that there is significant positive effect of ICT on employees' commitment  $X^2(4, n = 192) = 234.81, P = 0.05$ .

Findings on research question two revealed that there is significant positive effect of ICT on average time for completion of work in the studied organisations. The statement was confirmed to be true in the test of hypothesis two. The evidence is shown in the calculated value (245.55) which is greater than the critical value (9.49). This is in line with the empirical review conducted by Ahmed (2018) on the effect of ICT on average time for completion of work. It was found that there is significant positive effect of ICT on average time for completion of work.

It was found that there was significant positive effect of ICT on average time for completion of work in  $X^2(4, n \sim 192) = 245.55, P = 0.05$ ,

Findings on research question three revealed that there is significant positive effect of ICT on employees' effectiveness in the studied organisations. The statement was confirmed to be true in the test of hypothesis three. The evidence is shown in the calculated value (116.80) which is greater than the critical value (9.49). This is in-line with the empirical review conducted by Jamieson Burnett, Finger, & Watson, (2008) on effect of ICT on employees' effectiveness, it was found that there is significant positive effect of ICT on employees' effectiveness.

Findings on research question four revealed that there is significant positive effect of ICT on employees' efficiency in the organisations studied. The statement was confirmed to be true in the test of hypothesis four. The evidence is shown in the calculated value (45.13) which is greater than the critical value (9.49). This is in line with the empirical review conducted by Pepple (2020) on effect of ICT on employees' efficiency and it was found that there is significant positive effect of ICT on employees' efficiency.

### **5. CONCLUSION**

The study concluded that without proper use of ICT applications on work performance to assist in disseminating information to users, employees in drug manufacturing companies will be unable to function effectively and efficiently and the low use of ICT to drive operations in such organisations would result in inefficiency and ineffectiveness of the company's operations and job performance. The study also revealed 'that the use of ICT had significant positive effect on employees' performance and it was recommended that management of the company should improve the commitment of their workers by providing them with the necessary ICT tools needed to carry out their duties. They should give attention to the time of completion of the tasks given to them, improve the performance of their employees by training and re-training them on the use of ICT in the discharge of their duties. Management should also give attention to the effectiveness of their workers by providing them with ICT tools needed to accomplish their tasks and there is need for management to improve the efficiency of their workers through the use of ICT tools.

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