

# Managing Technological Changes In The Public Service Sector: A Study of Anambra State Ministry Of Education, Awka

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## ABSTRACT

This study focuses on the challenges of technological development in public service sector. Technology is being marked as an engine for indigenous economic transformation and improved service delivery. With a proper communication system which is seen as an instrument in the public service, there is a change of survival for the sector. Technology has boosted better performance in various workplaces which transforms into better service delivery and efficiency, based on the findings of this research a conclusion was drawn that technology no doubt plays an important role in the development of public services sector. Unfortunately it is also observed that there is still some loop holes which ought to be checked with the following recommendations: Managing the challenges of technological development in public service sector should be seen as an important determinant in the survival of any public service sector. Also advancement of new technological innovation should be encouraged and obsolescence and uncertainty should be encouraged.

## 1. INTRODUCTION

The need for a conducive work environment is for great importance all over the economic system prevalent in a nation determines the pattern of production and distribution of goods and services. With an improved technology, managerial actions are more effective and efficient.

The term 'technology' appeared first in English in the 17th century in connection with the discourse of the applied arts but it gained wider usage from the late 19th century as involving industrial and technical means, productions of material goods. Technology is derived from two (2) Greek words; techno (craft, skill) and logos, words used to express inward thought or knowledge or reason). Technology therefore means a study on the arts or a systematic study of techniques or of regular method of making things. It involves the knowledge of human techniques in doing things. The history of technology is part of the history of the development of human culture in the entire life of humanity. It is the progressive development of man in his needs that necessitated technology and its development. Thus the history of technology could be reduced to the history of man's improvement of his techniques and this means the history of how skills are crystallized into better ideas.

The different levels of civilization of the human mind gave rise to the various stages of the history of technology. In the electronic mass media a lot has been achieved and still needs further advancement, right from the opening of the first radio station in 1959 till today much has been achieved.

In the transport system, even before the amalgamation of north and south into the colony in 1914 the flow of transport was in a north-south direction. Attempts were made to connect the seaport to the main lands so as to facilitate the drawing away of raw materials to the Western European countries. Nigeria has many airports of international standard, e.g., we have Lagos, Kano, Port-Harcourt, Abuja, Enugu and others. But the lack of marching input in indigenous skilled labour and education is shown in the poor maintenance of skill and care, and the imposing need to design, construct and manage our transport machinery.

All over the world, information technology has become the digital nervous system of public service. Technology in public service proves to be one of the major success stories of this century. The use of computers has been more wide spread in public service than in all the other sectors of the economy. Hence, there is a growing rate of adopting new technologies in Nigeria public service sector and on the other sector; they have realized that there is need for improvement and update of technology; in order to have efficient service and to serve the public better.

The event of new technology has brought about many technological change sin the Nigeria public service sector which has led to a change in the way operations are carried out in the sector. The following can be seen as problems they face presently.

- i) The effect of inadequate technological development on labour.
- ii) Improper communication on change and technological innovation.

## 1.2 RESEARCH HYPOTHESES

- H<sub>01</sub>: Technological development has no effect on labour participant  
H<sub>02</sub>: The public service sector does not advance through eliminating obsolete

## 2. LITERATURE REVIEW

One of the striking international developments in the last six decades is the emergence of early industrialized countries propelled by investment in technology. The importance of technology and technological changes in industrial development cannot be over emphasized.

The term technology first appeared in English in the 17th century in connection with the discourse of applied arts but gained wider usage from late 19th on as involving industrial and technical means processes, tools, machines and ideas in the knowledge of human techniques in doing things. According to Michael (1983) technology is the study of techniques employed in industry, agriculture, etc and more so, it is any application of the discoveries of science or the scientific method to the problems of man and his environment in peace and ward.

Hugo (1978) has the following collection of definitions;

- The body of knowledge concerning manufacturing and extractive processes
- The whole or an organized sector of the industrial application of science
- A society's set of techniques for obtaining substance
- Finally all existing means for achieving organizational goals

Brugger, (1974) in his study stated that technology is the methodical utilization of natural resources and forces on the basis of the knowledge of nature in order to take care of man's need. Of all the above definitions, Brugger's definition is the most articulated and concise, having the following features in common.

- All means employed by man to solve his needs
- All processes of techniques and skills in
- All methodological ideals, principles, laws and general procedures which are further crystallized by unification of, than the ones realized presently in the resources.

Today's public service sector is very dynamic and undergoes rapid changes as a result of technological innovation, increased awareness and demand from public. From the 21st century Nigeria industries operate in a more complex and competitive environment characterized by these changes condition and highly unpredictable economic climate. Technology is at the centre of this global changes curve. Laudon and Luadon, (1991) contend that managers cannot ignore information system because they play a critical role in contemporary organization. It is known that the result of technological advancement in globalization reviewed that globalization as in any other human endeavour has its good and bad effects.

The good or rather positive effects are inter-national specialization, thus, the system enables free flow of investment capital to take advantage of opportunities for higher yields across national boundaries. The bad effects include the widening gap or imbalance between developed economic systems in the west and the developing economies of the third world countries. Another adverse effect is the embrace of globalization conditionality by the developed economics.

According to Andrew, (1993) new ways of doing things are being constantly fuelled by technological innovation, just as one has to think of cash dispensers outside bank (ATM), flexible manufacturing systems which enable many operations involved in building a car, to perform automatically by robots. Technology is known to bring about technological changes and organizations ought to keep these changes, in any case whereby an organization is lagging and its competitions adapt to those changes then the organization becomes uncompetitive and eventually fails. In as much as technological changes investment in training, it does not then mean that managers avoid the act of change in its transaction.

Ben, (1967) reviewed that an increase in the rate of technological change is likely to accelerate the rate of obsolescence of human capital which means, higher rates of obsolescence will reduce the optimal amount of investment in training at any point in time. Technological change should therefore, lead to decrease in investment in specific training. Technological change has also led to increased risk and uncertainty of investment in human capital that was why Williams effects, impacts the decision of both individuals and firms;

the negative effect should be stronger for individual investment than firm investment. Economic theory therefore does not provide a clear prediction with regard to the effect of technological change on the level of the job training, while the higher rates of obsolescence and increase in uncertainty are likely to decrease the amount of training. Other factors such as the increases in the value of time in training, relative to work and a reduction in the direct costs of training are likely to increase the amount of job training.

Technology embraces a variety of practical activities that provides goods and services for man's use, enjoyment and welfare manufacturing, transportation, communication, the raising and processing of foods and the conversion of energy into usable forms are typical 20th century technological activities, especially as the understanding of natural phenomena and are complex, highly skilled and technical operation as in the works of (1967). Technology is an outstanding integral part of the content of the culture of people which exist from the non-material content. It is built up as people put together their knowledge, compare it and profit from one another's experience and interpretation, this is from the works of Walker. We can therefore say that technology is part of life of the people. Genuine technology draws its values from the food it serves to man to help him realize more of his being. Technology is part of life of the people. Genuine technology draws its values from the food it serves to man to help him realize more of his being. With a summary from Talcolt, (1966), technology is something which is possible within the limits imposed by value-oriented pattern and by proper integration of motivational elements which result to the attainment of a given goal.

Communication is seen as the transmission of ideas, messages and instructions between the receivers and the senders. An entrepreneur must direct a business with proper and effective communication with the external and internal groups of the organization. To properly communicate is to primarily succeed and to improperly communicate is to bring forth the consequences of ineffective communication. Nwankwo, (1986) said that information can mean inter-related and dissemination of news, date, facts, messages, opinions and comments required in order to react knowledgeably as well as to be in position to take appropriate decisions. Organisations are growing at an alarming rate; this means that information received into any organization becomes very complex and complicated.

Due to competitors in the business, there is need to have an accurate, timely. Complete and concise communication network in any business. Communication is an important part of modern society. On the micro-economic scale, organizations have used effective communication infrastructure and economic growth, even through some view disputed the fact that a casual relationship existed between good telecommunication infrastructures. Franzed (1996) emphasizes on the fact that information technology enables banks to develop more efficiently and effectively in its operational and managerial processes. The first direct bank in U.K provides comprehensive banking services to about 900,000 customers with just a staff. This is achieved through the use of information technology. It shows that banks today, can operate in a more effective and efficient manner, with a lean number of staff through the aid of modern technology.

Holloway, (1995) on his study, points out that an increasingly important component of banks technological focus is the personal computers which are used as tools to reengineer the banking system. Technology is now used to automate most of the processes in the banking industry in the more developed parts of the world.

Cannon, (1980) in his study emphasized on the fact that technology involves, so in essence, one can say that no meaningful technology can emerge without a good education. The problem presently experienced in Nigeria with regards to man-power started back to the 1990's is not as much as again the lack of trained man-power (although it's still a problem) as the appropriate employment of the available ones. Mis-employment of skilled labour hinders economic advancement. According to Edgar, (1974) this kind of situation could advance with better labour could lead to a total waste of man-power and material resources, which is supposed to promote efficiency and effectiveness in the business environment.

Many researchers got so interested on the issue of new technologies being introduced into the workplace and it's impact on workers and more attention is on the area of how less educate workers will fare in the business environment due to the higher rates of technological change. The observed increase in wage inequality between college and high school graduates in the 1980's might be educated workers will deteriorate with the pace of technological change.

Lillaid, (1986) and Mincer (1989) considered the impact of technological change on young workers and the major emphasis was in the investment of computers. During the 1980, there was an enormous growth in the amount of computer resources used in the workplace. It has been argued that one concrete technological change experienced in our today business environment is known as the computer revolution. This situation tells more on the labour participants being undermined, not bearing in mind that man needs to work with machine and machine with man. The two (2) ought to go together to achieve efficiency and effectiveness in the business

environment which is globalization, it compels the organization either to survive or decay in obsolescence which is being experienced in the business environment as well.

Finally, technology in public service sector, has proven to be one of the major success stories of this century, hence, there is a growing rate of adopting new technologies in Nigerian public service operations. Before the new era of public service in Nigeria, the industry was characterized by inefficiency, bureaucracy and truly frustrating service. Today most public service use limited time to service their customers. This is possible because of the event of technology, killing the undesirable traits such as opposed hours of queuing in an unfriendly and uncomfortable environment. Unfortunately, these undesirable traits still continue in some public service.

### 3. METHODOLOGY

The research design adopted for this study is a survey method. This research work being conducted precisely at Anambra State Ministry of Education, Awka, Anambra State. The population on this study is 100 staff of Anambra State Ministry of Education Awka. Out of 100 workers Yaro Yamani's formula was used to determine the sample size.

$$n = N$$

$$\text{i.e. } n = \frac{N}{1 + N(e)^2}$$

Where: n = sample size  
 N = Population  
 E = Tolerable error usually 5%  
 (0.05)<sup>2</sup>  
 I = Constant

Applying the formular =  $\frac{N}{1 + N(e)^2}$

$$\begin{aligned} N &= 100 \\ (e)^2 &= (0.05)^2 \\ N &= ? \\ \therefore n &= \frac{100}{1 + 100(0.05)^2} \\ &= \frac{100}{1 + 100(0.0025)} \\ &= \frac{100}{1 + 0.25} \\ &= \underline{\underline{80}} \end{aligned}$$

In this research work there are two (2) sources of data collection used, they are primary and secondary data.

### 4. TEST OF HYPOTHESIS I

H<sub>0</sub>: Technological development has no effect on labour participant

H<sub>1</sub>: Technological development has effect on labour participant.

Responses	N	X	Y	XY	X <sup>2</sup>	Y <sup>2</sup>
Yes	1	3	49	98	4	2401
No	2	2	11	11109	1	121
Total	3	3	60		5	2522

$$R = \frac{N(\sum xy) - (\sum x)(\sum y)}{\sqrt{[N(\sum x^2) - (\sum x)^2][N(\sum y^2) - (\sum y)^2]}}$$

The formula for Z test is  $Z = r \sqrt{\frac{n-1}{1-r^2}}$

$$Z = \sqrt{1}$$

The correlation table calculate is 2522 the degree of freedom calculated through z test, since the sample size is more than 50.

Decision: Since the calculated R 2522 is greater than the critical R, which is 1 than the null hypothesis will be rejected and alternative hypothesis will be accepted which means that technological development has great effect on labour participants.

### HEST OF Hypothesis II

H<sub>0</sub>: The public service sector does not advance through eliminating obsolete equipment.

H<sub>1</sub>: The public service sector advance through eliminating obsolete equipment.

Responses	N	X	Y	XY	X <sup>2</sup>	Y <sup>2</sup>
Positive	1	3	45	90	4	2025
Negative	2	2	15	15	1	225
Total	3	3	60	105	5	2250

$$R = \frac{N (\sum xy) - (\sum x) (\sum y)}{\sqrt{(N (\sum x^2) - (\sum x)^2) (N (\sum y^2) - (\sum y)^2)}}$$

The formular for Z test is  $Z = r \sqrt{n - 1}$

$$Z = 1 \sqrt{2} = 1.414$$

The correlation table calculated is 2250 the degree of freedom calculated through z test, since the sample size is more than 50.

Decision: Since the calculated R 2250 is the null hypothesis will be rejected and alternative hypothesis will be accepted which means that public service sector advances through eliminating obsolete equipment.

## 5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

In this section the researcher summarizes the result of the analysis carried out in relationship with the research question and hypothesis. The conclusion would then be drawn from the recommendation for the study to be made. From the findings of the study, it is evident that for a public service to succeed, it is bound to face challenges of technological developments which comes with changes as time goes on, it is important for management to take pains to know the bases of these present day technological development as it is the key to the success of an organization.

Based on the findings of this research, the conclusion was drawn that technology, no doubt, plays an important role in the development of business environment. Since its evolution, it has to a great extent met organizational needs as well as individual needs.

However, there are still many areas which require adequate attention such as improving on already existing technology so as to build more scopes for better innovation, this means performances and better output in the long run.

Based on the findings of this study and in keeping with objectives of the study, the researcher makes the following recommendations.

- i) There should be an orientation of both management and staff on technological developments, challenges to be expected and how to tackle them.
- ii) Technological development should not have an adverse effect in labour participants rather it should be a means for additional skills.
- iii) There should be opportunities for employees to be sent in developmental course or training.
- iv) Public service should adopt standard communication network within and outside their sector.
- v) Obsolescence and uncertainty should be discouraged.
- vi) There are needs to employ competent staff that will be able to meet up required assistance to improve organizational innovation.
- vii) Managing the challenges of technological developments in a public service should be properly handled.
- viii) Advancement of new technological innovation should be encouraged.

## REFERENCES

- Ann, P.B and Sichertman, N. (1995). *Technological Change and Skill Acquisition: Young Workers*.
- Berry, M.V. (1983). *Technology*. London: Foutana Collins
- Brass, T. (1999). *Towards a Comparative Political Economy of Unfree Labour*
- Brass, T and Linden, M.V. (1997). *Free and Unfree Labour*. Brugger, W. (1967). *Philosophical Dictionary*. Washington DC: Gonzaga University Press.
- Connor, D.J. (1980). *An Introduction to the Philosophy of Education*. London: Routledge and Park K.
- Ediwards, E.O. (1974). *Employment in Developing Nations*. New York: Columbia University Press.
- Frederick, S.E. (1967). *Ideologies of Developing Nations*. New York: Praeger Inc.
- Fubara, B.A. (1985). *Business Management, Principles and Strategies*. Ibadan: University Press Ltd.
- Hodgson, A. (1982). *Capitalism, Value and Exploitation*: Oxford.
- Hugo, F. (1978). *A Dictionary of the Social Science*. London: Routledge and Kegan P.
- Koontz, H. et al (1983). *Management*. Japan: McGraw Hill.
- Kranzbery, M. (1977). *Technology, Field Enterprise*. Chicago: Ed Corp.
- Onuoha, B.C. (1991). *Fundamentals of Business and Management in Nigeria*. Aba: Unique Press Ltd.
- Person, T. (1966). *The Social System*. New York: Free Press.
- Steedan, (1982). *Classical and Maxian Political Economy*. London: Macmillan.
- Smith, T.M (1967). *Technology*. Washington DC: Catholic University of American Press.
- Wilkinson, J. (1964). *The Technological Society*. New York: Vintage Books.

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