

# **The analysis of cost and benefit of computerization in Nigerian banks: (A study of some selected banks in Awka, Anambra state, Nigeria)**

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## **Abstract**

The research work critically investigates the analysis of cost and benefits of computerization in Nigerian banks. To achieve the stated objectives, the researcher obtained the necessary data for investigation from the primary and secondary sources of data involving the use of questionnaires as well as the review of the relevant and related literatures to the research topic. Furthermore, the researcher advances some hypotheses, which were tested and validated using percentages and chi square ( $X^2$ ) statistical analytical tools. The results of the analysis show that the use of computers enhances the efficiency of deposits money banks and that the use of computers increases profit and growth of deposits money banks. However, the result also shows that the use of computers eliminates fraud in the deposit money banks. The researcher recommends the use of the communication system (telephone, internet-banking, etc) which is the basis of today's banking should be improved and at the same time localized to meet the rising in competition and standard that is already present in the western world. However, having weighed the merits and demerits of the introduction of the use of computers in deposits money banks in Nigerian banks especially, the deposits money banks should embrace and invest in the new technologies to be able to meet the needs of their today's banks. Furthermore, as detection, prevention and control of computer fraud so far has proved abortive, some yard stick should be used in employing and assigning workers to operate the computer as supervision should be practically and regularly observed.

## **Keywords**

Banks, Computer, Information Technology, Money, Benefits, Cost, Chi Square

## **1. Background of the Study**

The financial institutions are the bed rock of any economy. This means that no economy can develop without a good financial based operational system. The banking sector is one aspect of the financial institution but its importance cannot be over emphasized because it is this sector that store and controls the flow of the nation's treasures in the form of money. Since money has been

known to be the driver of all other aspects of a nation's economy, there is the need to safeguard and modernized the operational system, so as to meet up with the emerging economies of the world. Prior to the computerization of the banking system in Nigeria, the sector was with unnecessary bureaucratic bottlenecks fraud and high levels of inefficiency. The inefficiency brought about the near total collapse of the banking sector. Majority of the customers began looking for other ways of storing their treasures. The banks on the other hand, developed large quantities of files

and documents in storing their data and other information. The manual approaches no doubt; a daunting task and it waste a lot of man-hour. The introduction of the computer into the system brought about a kind of revolution in the banking sector.

According to maker (2000) "the advent of computer has greatly improved sourcing, handling and spreading of information.

The computer process information and performs such routine tasks as printing of journals, posting of ledger accounts, determining account balance and printing financial statements and other reports like assets and liability statement (Wither, 1977). This is why the computer has been universally employed in the banking institutions and it has made possible the transformation of banks form paper shuffling, recording keeping operation to manufacturing of financial and progressive services.

For instance, the computer is used in the administration of national and foreign currencies by making the necessary accounting inputs.

A typical example here is the introduction of the automated teller machine (ATM), which uses an electronic card to operate. Therefore, the study seeks to address the cost and benefits of computer applications in efficient service delivery in banks.

## 2. Objectives of the Study

The broad objective of the study is to ascertain the cost and benefits of computerization of some selected commercial banks in Nigeria

The specific objective of the study include the following,

- a. To examine how the introduction of computer technology can reduce the waiting time of customers while withdrawing money form or deposing money into their accounts
- b. To assess the usefulness of computer technology in generating information for customers
- c. To determine the decision on the relevance, cost effectiveness and suitability of computerization of banks
- d. To analyze some of the problems encounter in the bank due to introduction of computers.

## 3. Literature Review

In this research work, the researcher reviewed many works and studies of different writers, scholars and authorities. But not much attention has been given to the computer system in banking operations which involves manipulation, storage and retrieval of documents.

The break-through of the century in the field of information technology is the development of the computer. By the development of this machine data processing technology has been revolutionized in the financial world among others.

The banking institution is a service organization that

provides a wide range of service in the economy. According to Culbert (1986), a banker is a dealer in capital, or more properly, a dealer in money. He is an intermediate party between the borrower and lender. He borrows from one party through the medium loans. The survival of the banking industry to a larger extend depends on their deposit base. The deposit base on it depends on the degree of quality services available inducing the stuas of their financial packages to customers. Customer's patronage and hence accurate information, attractive interest rate created regularly on account and such others. To effectively enhance turnover through these parameters, the computer as the called in place to update customers' accounts as the activities of depositing and withdrawing is taken place.

The role of the computer is signature verification is another mark in banking-operation the enterprise banking industry has in recent times been a victim of fraudulent practices by trick stars who had used to forget and unauthorized signatories to scoundle away huge sums of money. According to Umoren (19850, the fraud in the banking is alarming. The computerized system is one of the effective devices of investigating such loses through proper signature verification the usefulness of the computer has also been found attending to customers enquires because information can be easily passed on to the customers. Its utility has been expressed in the area of cheque clearing, processing of payment request and turnover assessment. By this users, customers waiting time is highly reduced. Banking operations are equally reduced. Investing in such a system that range of application may be worth it in our banking sector. According to Horgreares (1980), investment in more costly system should be judged in the light of expected benefits.

The extent to which the role of the computer at both the macro and micro level in the industry is appreciated is a function of the level of computerization. The higher the level of computerization, the higher the benefits conferred and the more the role is appreciated.

The computerization also affects the role of the computer in our banking industry. More efficient systems produce more efficient result and save a lot of man hours and cost. The online system seems to be one of the best systems. According to sip 1 and sip 1.p (1994).

Online or direct system ahs four principal component, a central processor, a communication linkage a terminal device and a task, but if there is not human action required in the communication linkage, the system is director online".

The implication of these definitions is that in an online processing the operation of terminals, sites and other auxiliary equipment are under direct and absolute control of the central processing to eliminate the need for human intervention at any stage between initial input and computer output. By this system input are processed quite fast and the output in oriented out or lot of saving in man hours in bank operation. This form of system enhances the role of this computer in the enterprise banking industry.

The role of computer operation is thus affected the cost of operations generally, the computer usage in our banking industry is having a tremendous impact in its operations. Many banks old and new consider it a turnaround strategy of the country. Its application is fast growing in our enterprise banking industry.

Most banks today are computerized to handle their daily voluminous tasks of information retrieval, storage and processing. Irrespective of whether they are automated or not, banks by their natures are involved in all forms of information technology and management on continuous basis (Molina, 1997). Bank plays their significant role in any economic system. They are financial intermediaries involved in transfers of funds which and outside the country. Banking sector is getting competitive every day. Quality, speed, efficiency and innovations are the main points on the quality programs are designed. All banks are engage in same basic banking activities but it is the way delivery of services that distinguishes one bank from the other.

Taking a proactive stance against privacy invasion could help slave off government intervention in passing legislation to create tighter controls over what can be done with in individual's personal data. The development computerized banking system, however, involves substantial amount of work, which ranges from collecting sufficiently large number of data items. Computerized banking system uses computer technology to relive the consumer of the paper based and time consuming work. With the help of computerized banking, one can have access to money and banking functions anytime and anywhere, even when there is internet access (Renom, 1997). This technology has seen a tremendous increment in the usage, as more and more big national banks and various other banks in smaller regions, have started some form of computerized banking to provide conveniences to their customers and to themselves

#### 4. Research Method Used

This study is aimed at finding the benefits and costs of computerization in Nigerian banks specifically, commercial banks. The research method used in carrying out this study is reviewed in this research work.

The aim is to interrogate and report the present status of computerization and its benefits and cost on depositing money in banks. In other words, the research words were based on recent findings in the survey conducted and histories of research from several documents. Furthermore, it consists of the selection of the location of research, research design, sources of data, techniques of data collection and sampling procedures.

#### 5. Sampling Size

The study made use of both primary and secondary data which were sourced with the aid of the questionnaires

issued and some text books. The sample size the study was determined thus;

$$n = \frac{N}{4N(e)^2}$$

Where  $n$  = sample size  
 $N$  = population size  
 $e$  = Error Term

Thus;

$N$  = 150

$E$  = 10%

$$\therefore n = \frac{N}{1 + N(e)^2} = \frac{150}{1 + 150(0.1)^2}$$

$$2.5$$

$$n = \frac{150}{2.5} = 60$$

#### 6. Method of Data Analysis

Information collected from the respondents through administered and returned questionnaires were presented in a frequency distribution analysis and interpreted using percentage (%) and the chi-square ( $\chi^2$ ) statistical tool which is considered adequate for the analysis. The chi-square ( $\chi^2$ ) is used to test whether the discrepancies between the observed frequencies (of) and expected frequencies

( $\in F$ ) are significant or could have occurred by chance.

#### 7. Description of Analytical

The nature of the study requires the formulation of many hypotheses that are subject to proof. As a result, research hypotheses are to be tested. The statistical technique for testing the hypotheses is the chi-square ( $\chi^2$ ) distribution. The formula was advocated by Freud and Williams (1975), and it is given as follow

$$\chi^2 = \sum_{i=1}^k \frac{(oi - \epsilon i)^2}{\epsilon i}$$

#### 8. Specification of Variables

$\chi^2$  = Chi-square  
 $\epsilon$  = Summation sign  
 $H_o$  = Null hypotheses  
 $H_1$  = Alternative hypotheses  
 $O_i$  = Observed frequency  
 $r$  = Number of Rolls  
 $c$  = Number of Columns  
 $>$  = Greater than  
 $<$  = Less than

#### 9. Decision Rule

Accept the null hypothesis ( $H_o$ ), if the table chi-square ( $\chi^2$ ) value is  $>$  the calculated chi-square ( $\chi^2$ ) and reject the alternative hypothesis ( $H_1$ ). Conversely, if the calculated

chi-square ( $\chi^2$ ) is  $>$  the table chi-square ( $\chi^2$ ) accept the alternative hypothesis (H1) and reject the null hypotheses (Ho).

## 10. Presentation, Analysis and Interpretation of Data

This is concerned with the presentation of data collected during the field work. If further conduct a detailed analysis with the aid of suitable statistical technique of the data collected.

## 11. Analysis of Questionnaires Returned as Against Number Distributed

Table 1. Analysis of Questionnaires

Banks	Number Distributed	Number Duly Completed and Returned	Percentage Returned	Percentage Not Returned
Access Bank	15	12	21	4
Eco Bank	15	15	25	-
Uba Bank	15	11	19	6
First Bank	15	12	20	5
Total	60	50	85	15

Source: Survey 2014

From the table above, a total number of sixty (60) questionnaires were administered to the employees of the select bank that is, an average of 15 questionnaire distributed, fifty (50) were returned and completed of which ten (10) not returned at all.

The returned questionnaire represented 85% of the total number distributed for the study. On the other hand, the questionnaires that were not returned at all represent 15% of the total questionnaires distributed.

### 11.1. Testing the Hypotheses

#### 11.1.1. Hypotheses 1

*Ho:* The use of computer does not enhance efficiency of deposits money banks.

*H1:* The use of computers enhances efficiency of deposits money banks.

*Question:* has the use of computer increased your banks efficiency in computer service?

Table 2. Observed Frequency

Options	Response	Percentage
Yes	37	74
No	13	26
Total	50	100

Sources: Field Survey 2014

The expected frequency is given by:

$$E_{ij} = \frac{RC_i}{n}$$

$$E_f = \frac{50}{2} = 25$$

$$\begin{aligned} \text{Degree of freedom} &= (R - 1) \\ &= (2 - 1) \\ &= 1 \end{aligned}$$

Table 3. Contingency Table ( $\chi^2$  VALUE)

OF	EF	OF-EF	(OF-EF) <sup>2</sup>	(OF-EF) <sup>2</sup> /EF
37	25	12	144	5.76
13	25	-12	144	5.76

Thus, the  $\chi^2 C = 11.52$ ,  $\chi^2 = 11.52$

The table  $\chi^2$  at 1 degree of freedom and 5% level of significance = 3.841

*Decision:* since the  $\chi^2 C$  (11.52) is  $\chi^2$  tab (3.841), we reject the null (Ho) hypotheses and accept the alternative hypotheses (Hi), hence, the use of computers enhances the efficiency of banks.

#### 11.1.2. Hypotheses 2

*Ho:* The use of computer does not increase profit and growth of deposits money banks.

*H2:* The use of computers increases profit and growth of deposits money banks.

*Question:* what effect has computerization of profit and growth of your bank?

Table 4. Observed Frequency

Options	Response	Percentage
Large increase	43	36
Small increase in profit	5	10
No increase in profit	2	4
Total	50	100

Source: Field Survey 2014

$$\text{Expected frequency} = \frac{50}{3} = 16.67$$

$$\text{Degree of freedom} = (R - 1) = 3 - 1 = 2$$

Table 5. Contingency Table ( $\chi^2$  VALUE)

OF	EF	OF-EF	(OF-EF) <sup>2</sup>	(OF-EF) <sup>2</sup> /EF
43	16.67	26.33	693.27	41.59
5	16.67	11.67	136.19	8.17
2	16.67	14.67	215.21	12.94

Thus: The  $\chi^2 C = 62.7$ ,  $\chi^2 = 62.7$

The table  $\chi^2$  at 2 degree of freedom and 5% level of significance = 5.991

*Decision:* since the  $\chi^2 C$  (62.7) is  $>$   $\chi^2$  tab (5.991) we reject the null (Ho) hypotheses and accept the alternative (Hi) hypotheses. Hence the use of computers increases

profit and growth of deposit money banks.

### 11.1.3. Hypotheses 3

*Ho:* The use of computers does not eliminate fraud in the deposit money banks

*H3:* The use of computers eliminates fraud in the deposit money banks

*Question:* has the use of computers eliminated fraud in your bank?

Table 6. Observes Frequency

Options	Response	Percentage
Yes	38	76
No	12	24
<b>Total</b>	<b>50</b>	<b>100</b>

Sources: Field Survey 2014

$$\text{Expected frequency} = \frac{50}{2} = 25$$

$$\begin{aligned} \text{Degree of freedom} &= (R - 1) \\ &= 2 - 1 = 1 \end{aligned}$$

Table 7. Contingency Table ( $X^2$  VALUE)

OF	EF	OF-EF	(OF-EF) <sup>2</sup>	(OF-EF) <sup>2</sup> /EF
38	25	23	529	21.16
12	25	-13	169	6.76

Thus, the  $X^2C = 27.92$ ,  $X^2 = 27.92$

The table  $X^2$  at 2 degree of freedom and 5% level of significance = 3.841

*Decision:* Since the  $X^2C$  (27.92) is  $> X^2$  tab (3.841) we reject the null ( $H_0$ ) hypotheses and accept the alternative ( $H_1$ ) hypotheses. Hence the use of computers eliminates fraud in deposit money banks.

## 12. Discussion of Finding

At this stage, it is necessary to discuss our findings, this will follow simple sequence. As regard the aim of computerization, all the respondents agreed to the fact that profit maximization, market share increase, job satisfaction, growth in deposit and customers satisfaction are reasons for computer application in banks. The implication of this is that, the authorities of the banks have the welfare of the banks as well as the welfare of the employees in mind when making decisions. This is a general consensus that computer installation is beneficial to banks, especially as it concerns the quality of service they render.

On the side of employment rate, there was an arrangement that they should move from labor intensive to capital intensive. It can also be said that efficiency in service has increased resulting in more confidence in the banks, which has led to increase in deposit rates.

From the discussion held with staffs, it can be concluded that profit level has increased and has resulted in growth in loans and advances at a moderate interest rate and which

yields high returns.

Furthermore, reasonable number of respondents testified that there are inherent problems associated with the use of computers. They generally lament over the high cost of procurement, installation and cost of training computer experts.

In testing the hypotheses formulated, it was discovered that the null ( $H_0$ ) hypotheses one, two and three were rejected while the alternative were accepted, proving the importance of computer applications in Nigeria banking industry.

## 13. Summary of Research Findings

From the results, analysis, findings and observations, the Nigerian banking system has benefited a lot in the development and innovation of information technology in the banking industry. From the start, it was observed that the operations and services of the banking industries were computerized.

From the findings in hypothesis one, the use of computers enhances the efficiency of banks. This was proved by the chi square statistical tool used in the analysis which shows that the  $X^2C$  (11.52) is  $X^2$  tab (3.841). Therefore, we reject the null ( $H_0$ ) hypotheses and accept the alternative hypotheses ( $H_1$ ).

From the findings in hypothesis two, the use of computers eliminates fraud in deposit money banks. This was proved by the chi square statistical tool used in the analysis which shows that the  $X^2C$  (27.92) is  $> X^2$  tab (3.841). Hence, we reject the null ( $H_0$ ) hypotheses and accept the alternative ( $H_1$ ) hypotheses.

From the findings in hypothesis three, the uses of computers increase profit and growth of deposit money banks. This was proved by the chi square statistical tool used in the analysis which shows that the  $X^2C$  (62.7) is  $> X^2$  tab (5.991). Therefore, we reject the null ( $H_0$ ) hypotheses and accept the alternative ( $H_1$ ) hypotheses.

Therefore, the use of information technology in the banking system has increase profitability, improve the banking system, enhance the lending opportunities and it has reduce the rate of crimes and frauds in the banking system. It has also influence and impact positively on the customer's relationship to the banks under study.

Finally, the banking system has no option than to embrace the benefit of information technology because it is the back bone of achieving a greater height easily and faster and it is the only means of achieving the jet age customer's needs and wants in the banking system.

## Recommendation

From the research findings, its hereby recommend as follows:

Having weighed the merits and demerits of the introduction of the use of computers in deposits money banks in Nigerian banks especially, the deposits money

banks should embrace and invest in the new technologies to be able to meet the needs of their today's banks.

As customers of different branches wants to get the same quality of service, management should see it that the same technologies were present in all branches to enhance competition and equal customer services.

The communication system (telephone, internet-banking, etc) which is the basis of today's banking should be improved and at the same time localized to meet the rising in competition and standard that is already present in the western world.

Acquisition of stand by generating set by banks in order to reduce dependence on the power holding company of Nigeria (PHCN) is recommended while at the same time, appeal should be made to the government to improve the Nigerian power holding company so that the banks can witness unlimited power supply.

To ensure maximum utilization and service from the computer system, indigenous scientist and analysts should be carefully trained to manage the system. Maintenance cost is reduced if banks have their own technicians.

To safeguard financial information so that unauthorized persons will not gain access to them a task that should be taken seriously.

As detection, prevention and control of computer fraud so far has proved abortive, some yard stick should be used in employing and assigning workers to operate the computer as supervision should be practically and regularly observed.

The level of computer performance of bank technology would depend on the preparedness of other service providers and efficient management to cooperate towards ensuring the efficient management of the system.

Competency from the organizations which provide the banking industry with adequate technological support services should be up to standard to avoid any setbacks in their computerization efforts.

Strategic use of high hi-technology information mechanism, such as the electronic delivery system will make a lot of difference in market penetration, product differentiation and profitability of banks in this country as players shift their focus from economics of scale to economics of scope

Bankers need to be practice in ensuring that they have the appropriate to cope by the 21<sup>st</sup> century technologies

Lastly, it is high time that the government and authorities begin to put more resources in science development programmes in order to reduce the importation of these new technological equipment by the next two decade (Nwosu 2000)

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