

# ICT AND NIGERIAN BANKS REFORMS: ANALYSIS OF ANTICIPATED IMPACTS IN SELECTED BANKS

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## ABSTRACT

*Banking has become highly Information Communication Technology (ICT) based and due to its inter-sectoral link, is reaping the benefits of technological revolution as evidenced by its application in most of its operations. This study empirically analyzes the anticipated role ICT has in enhancing the operations of selected Nigerian banks in the light of current reforms. Primary data was employed, which was analyzed using cross-tabulations and regression technique built on the framework of technical progress. Factors such as bankers' age, educational qualification, computer literacy and type of ICT gadgets, were found to influence banks' degree of ICT usage, while ICT impacts significantly the speed of banking operations, productivity and profitability. The need for banks to regularly train their workers, and procure quality ICT gadgets, which will enhance efficiency, etc, was stressed. This is crucial in the sector's current reforms where attention is focused on the ability of banks to attract and retain customers, which is primarily accomplished through efficient service delivery.*

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## INTRODUCTION

In recent times, Information Communication Technology (ICT), which basically involves the use of electronic gadgets especially computers for storing, analyzing and distributing data, is having a dramatic influence on almost all aspects of individual lives and that of the national economy- the banking sector inclusive. The increasing use of ICT has allowed for integration of different economic units in a spectacular way. This phenomenon is not only applicable to Nigeria but other economies of the world, though the level of their usage may differ. In Nigeria, ICT usage especially in the banking sector, has considerably improved, even though it may not be as high as those observed for advanced countries (Adeoti, 2005; Adeyemi, 2006).

The use of ICT in the banking sector became of interest to this study due to the significant role it plays in the economy. It helps in stimulating economic growth by directing funds to economic agents that need them for productive activities. This function is very vital for any economy that intends to experience meaningful growth because it makes arrangements that bring borrowers and lenders of financial resource together and more efficiently too than if they had to relate directly with one another (Adam, 1998; Ojo, 2007). In essence, the banking sector acts as a bridge that connects lenders and investors in the economy. Hence, the need for reforms in the sector initiated by the Federal Government via the instrumentality of the Central Bank of Nigeria-CBN.

The bank reforms (especially the recapitalization that specifies a minimum capital base of 25 billion naira for commercial banks), are pursued with a view to making the sector realize its objectives in advancing the economy (CBN, 2006). It is expected that the impact of these reforms will be enhanced with the use of ICT because it will create some form of competitive advantage and improve banking services through accuracy and efficiency in their transactions. In other words, it will change the nature of banks' services in terms of quality which will culminate in greater service delivery and productivity. This is in tandem with the findings made by Adeoti (2005) that the use of information technology has the ability of improving the competitiveness of Nigerian manufacturing industries.

From the above discourse, this paper seeks to carry out an empirical analysis on the anticipated role of ICT in enhancing the operations of selected Nigerian banks in the light of current reforms in the sector. To achieve this objective, three commercial banks were selected, viz; Union Bank of Nigeria Plc-UBN, United Bank for Africa Plc- UBA and Wema Bank Plc-Wema. The study is structured into sections. Next to this introduction is the literature review, followed by the analytical framework and methodology. Section 4 is analyses of data, summary of findings and recommendations. The last section is the conclusion.

## **LITERATURE REVIEW**

### The Concept of ICT and a Perspective of Nigerian Banks

Technology can be referred to as the application of knowledge for the execution of a given task. It entails skills and processes necessary for carrying out activities (works) in a given context. While ICT encompasses computer systems, telecommunication, networks, and multimedia applications (Frenzel, 1996). It came into use in the late 1980's replacing earlier terms like Electronic Data Processing (EDP), Management Information System (MIS), although the latter terms are still in use (Frenzel, 1996).

ICT has transcended the role of support services or only electronic data processing; its fields of applications are somewhat global and unlimited. Its devices especially the Internet through the World Wide Web (www) and modern computer email facilities have further strengthened early innovations like the telephone and fax. Other ICT devices include data recognition equipment, factory automation hardware and services, tele-computing and teleconferences using real time and online system (Adeoti, 2005). It is a concept that is having a remarkable effect on almost entire aspects of the human endeavours. This connotes that it involves the application of principles to engage physical component in achieving an intended goal.

The convergence of computer and telecommunication after about four decades of applying computers to routine data processing, mainly in information storage and retrieval, has created a new development where information has become the engine of growth around the world. This development has created catch-up opportunities for developing countries such as Nigeria to attain desired levels of development without necessarily 'reinventing the wheels' of economic growth. This new technology has brought far-reaching revolution in societies, which has tremendously transformed most business (banking) scenes (Ovia, 2005).

With respects to the banks in Nigeria, the first bank was established in 1892 (then African Banking Corporation). However, there was no banking legislation until 1952 when three foreign banks (Bank of British West Africa, Barclays Bank, and British and French Bank) and two indigenous banks (National Bank of Nigeria and African Continental Bank) were established, with a total number of 40 branches (Iganiga, 1998). As at 1988, the Nigerian banking system consisted of the CBN, 42 commercial banks and 24 merchant banks (Iganiga, 1998; Adam, 2005).

From 1970, the banking sector grew significantly in terms of number and coverage as a result of increase in economic activities. However, between 1970 and 1985, the growth of the sector was relatively slow due to predominant government regulations but the period 1986-2000 witnessed a phenomenal growth of the sector as a result of the financial deregulation policy, that is the Structural Adjustment Program-SAP of 1986 (Iganiga, 1998). This brought about the liberalization of bank licence leading to a rapid change in the sector. Some of the banks were characterized by paper oriented methods, rather than technological based systems and this resulted to slow pace of their operations vis-à-vis their employees' productivity cum general performance. The use of computers and other ICT gadgets in their operations were limited.

This was one of the reasons adduced by Ojo (2007) as factors responsible for the Nigerian financial sector malaise.

To mitigate the shocks experienced in the system, the Federal Government of Nigeria came up with the financial sector reforms through the CBN. The bank reforms entail other issues but this paper is dwelling mainly on the bank consolidation that was initiated in 2004. The policy thrust on bank reforms encompasses the sum of the variations that occur in the direction of a comprehensive banking system. The bank reforms agenda, among others, specified a minimum capital base of 25 billion naira for the commercial banks that took effect in December, 2005 (Diamond Bank, 2005; CBN, 2006). This has reduced the number of commercial banks in Nigeria from 89 to 25, which was done via the processes of mergers, acquisition and the stock market (CBN, 2006; Ige, 2007). The major aim was to make Nigerian banks vibrant and resilient, clothed with efficiency and financial strength to absorb possible shocks, thereby instilling public confidence as well as global relevance (Soludo, 2004).

### ICT and Nigerian Banking Sector

The revolution in ICT has made the banking sector changed from the traditional mode of operations to presumably better ways with technological innovation that improves efficiency. ICT can enhance efficiency via its use and in recent times banks have been encouraged by the rapid decline in the price of ICT gadgets. This has perhaps increased the bank level of ICT usage (Ovia, 2005). The increase might have also be attributable to business environment that became relatively flexible to accommodate new forms of technological change as a result of reforms in the country.

Banking is becoming highly ICT based and because of its inter-sectoral link, it appears to be reaping most of the benefits of revolution in technology, as can be seen by its application to almost all areas of its activities (Akinuli, 1999). It has broadened the scope of banking practices and changed the nature of banking as well as the competitive environment in which they operate. A broad opening has been experienced around the world for banks and they are currently taking due advantage of these innovations to provide improved customer services in the face of competition and faster services that enhance productivity (Akinuli, 1999; Ovia, 2005).

Technological advancement facilitates payments and creates convenient alternatives to cash and cheque for making transactions. Such new practices have led to the development of a truly global, seamless and Internet enabled 24-hour business of banking. Technological advance in payments are important due to the fact that it will be feasible to outsource quite a number of the banks' role in the payments system. Also banks' regulation can be more technologically dependent and better focused rather than focusing on conceptual guidelines. ICT revolution both in terms of innovation rate, speedy operation, and cost per unit (portraying reduction in average total and marginal costs) has made a good number of banks embrace the use of ICT infrastructure in their operations (Akinuli, 1999).

The technological innovation that is being witnessed currently in the Nigerian banking sector is possible of impacting on the banks' mode of transactions especially in their payment systems. The payment systems are made feasible by ICT gadgets such as Automated Teller Machine (ATM), Electronic Fund Transfer (EFT), Clearing House Automated Payments (CHAPs), Electronic Purse (E-PURSE), Automated Cheque Sorter (ACS) and Electronic and Transfer at Point of Sale (EFTPOS), which have made transactions easy and convenient. This phenomenon is capable of bringing about speedy operations and enhanced productivity (Adeoti, 2005; Ovia, 2005). Though there may be little interruptions at times due to network failures, which may make customers unable to carry out transactions at that point in time. This little shortcoming is not in any way comparable to the days when banking halls were characterized by long queues mainly as a result of delays in the traditional banking operations.

Now banks can provide comprehensive services to their customers by making them access their accounts via online services. These instruments have an edge over the traditional payment instruments because it is safer, more efficient, convenient and cost effective. Before the introduction of these ICT services in the banking industry, manual processing of documents were in use. The bankers were made to cope with this onerous task, and the process made business transactions minimal. Besides several hectic procedures, people had to contend with, banks' customers were inevitably made to spend several hours in the congested banking halls in carrying out their transactions (Ovia, 2005).

The ICT culture in Nigerian economy can be said to be on the increase. Nigeria is the largest Internet subscriber in Africa with about 100,000 Internet users as at 2000, which was estimated to have grossly increased (Balancing Act, 2007). It has also been observed that Nigeria's teledensity had remarkably increased by more than 2,550% from 0.35% in 1992 to 9.3% in 2004, thereby greatly exceeding the International Telephone Union's (ITU) benchmark of 1% (Ndukwe, 2005). This phenomenon has helped banks keep substantial information on-line which reduces the cost of marketing their products. Being a competitive tool, it enhances the creation of customized services, reduces the cost of operation, and improves productivity as well as profitability.

More interestingly, almost all the banks in Nigeria have internet and on-line real time banking facilities which has improved the scope of Nigerian banking<sup>1</sup>. It has aided transfer of funds from one location to another without any involvement of facial transactions thereby reducing the incidence of loss of funds to stealing and the likes. Another recent one is the telephone banking technology that allows customers to have transactions on their accounts by calling a particular telephone number, through voice activation, and using a tone pad. All of these improve the comfort of banking transactions.

## **ANALYTICAL FRAMEWORK AND METHODOLOGY**

### Analytical Framework and Models Formulation

The study employs the concept of technical progress as framework in underpinning the anticipated impacts ICT has in the selected Nigerian banks. Technical progress involves discovering new methods of production, developing new products and introducing new techniques. It also implies the process by which firms in a given economy change over time, in terms of their products and production processes. It refers to an idea or a model for a new improved device, while innovation connotes its commercialization (Frenzel, 1996). Thus any change made in the method of firm's operations is expected to precipitate progress in that organization

In this formulation, when there is technical progress in a particular sector of the economy (banking for instance), it leads to increase in the productivity of labour as well as other factor inputs. The involvement of technical change will therefore enhance increased efficiency and effectiveness in the sector. Technological diffusion (i.e. increasing use of technology-ICT) is essential in realizing large scale economy benefits rooted in productivity gains. The productivity gains from the adoption of new technologies could be one of the major factors behind rising wages, while the introduction of new products could also be a factor accounting for the creation new jobs in the sector.

The evolutionary perspective of technical progress connotes the ability for firms in a given sector of the economy to have sustainable improvement which depends on their ability to generate technological change. This means that one of the major ways Nigerian banks can achieve their anticipated development is to embrace significant investment in ICT. This will be enhanced by improving the interaction with one another in knowledge creation and use that is capable of improving output via faster mode of operations as well as service delivery.

The paper formulated two models that would be fitted into the data. The first explores the possible factors that could determine the rate at which banks use ICT (i.e. the intensity of ICT use) while the second elucidates the anticipated impacts of ICT on the operations of the banks.

The model on intensity of ICT Usage in the Banks relates the use of ICT (ICTUSE) to possible factors that could explain the rate at which it is used in the banks. The explanatory variables included were: Age, Sex, educational qualification (Edu), computer literacy (Clit) and the type of ICT gadgets used by the banks (Type). This is represented in a functional form below:

$$\text{ICTUSE} = f(\text{Age, Sex, Edu, Clit, Type, } \mu) \tag{1}$$

The above equation can be written explicitly as:

$$\text{ICTUSE} = B_0 + B_1\text{Age} + B_2\text{Sex} + B_3\text{Edu} + B_4\text{Clit} + B_5\text{Type} + \mu \tag{2}$$

Where;

ICTUSE : intensity of ICT used in the banks

Age : age of the bankers

Sex : gender of the bankers

Edu : educational qualification of the bankers

Clit : their level of computer literacy

Type : type of ICT gadgets used in the banks.

$\mu$  : error term capturing other explanatory variables not explicitly included.

The 'B<sub>i</sub>'s (i= 1,...5) are the coefficients to be estimated which show the nature of relationship between dependent and explanatory variables while B<sub>0</sub> is the intercept of the regression line. The apriori is such that B<sub>i</sub> (i= 0, ...,5) > 0. This means positive relationship between dependent and explanatory variables.

In the above model, the extent at which the features of the bankers and type of gadgets used could influence the intensity of ICT usage in the banks is being investigated. This is essential given the fact that it is the bankers that make use of the installed ICT gadgets and for it to have the anticipated impacts in the operations of the banks it must have to be used efficiently.

The second model is on the impacts of ICT on the operations of the banks. It relates the usage of ICT (ICTUSE) to some of the variables believed to measure the performance of the banks such as enhancement in speed of banking operations and efficient service delivery (Spid), improvement of workers productivity (Wopd) and inducement in bank's profit level (Pfit). This model seeks to capture the anticipated impacts that ICTUSE will have in the banks. It is being represented thus;

$$(Xi) = f(\text{ICTUSE, } \mu) \tag{3}$$

This can further be expressed as:

$$(Xi) = \lambda_0 + \lambda_k \text{ICTUSE} + \mu$$

Where;

Xi : vector of the dependent variables (viz: enhanced speed of banking operations-Spid; improved workers' productivity-Wopd; and induced bank's profit-Pfit).  $\lambda_0$  is the constant while  $\lambda_k$  (k =1,2,3) shows the variations in dependent variables with respect to independent variable. The apriori is given as  $\lambda_k > 0$ . Others are as earlier defined.

### Research Design and Sources of Data

Primary data was used with the aid of structured questionnaire in analyses. The population of the study consists of the 25 consolidated Nigerian Banks while the sample is made up of three banks, namely: UBN, UBA and Wema representing about 12%. This is quite adequate as a sample of 0.05 proportion of the population is believed to be satisfactory in making inferences (Amadi, 2005). These selected banks have elements of the old and new generations, as some of them acquired/merged with other banks during the consolidation process of 2005. They operated paper based systems at inception and later adjusted at the dawn of ICT revolution.

With regards to branch networks, the selected banks have national coverage. UBA which was founded in 1946 merged with Standard Trust Bank Plc in August 2005 and later acquired Continental Trust Bank Plc and Trade Bank Plc in December 2005 and December 2006 respectively, has about 500 branches in different parts Nigeria. This made it to be the bank with the highest number of branch networks and first to reach one trillion naira in balance sheet (UBA, 2007). UBN was established 1917 and acquired Universal Trust Bank Plc, Broad Bank Ltd and Union Merchant Bank Ltd in 2005, has 379 branches. While Wema was incorporated in 1945 and merged with National Bank has 110 branch networks<sup>2</sup>. The target respondents were the bankers (cahiers and managers). This is because they make use of ICT gadgets in the banks; hence, they have adequate information of their operations.

The location used was Victoria Island, Lagos (a commercial hub of Nigeria) where most banks have their head offices from where decisions about the use of any ICT gadget are usually initiated and first implemented. Therefore, it is believed that the type of ICT gadgets used in this location would be the same across their branches. This corroborates the fact that the banks have the same mode of operations in all their branches as they are normally networked where one can access his/her account from any of them.

The Structured questionnaire drew responses on the following; age, sex, highest educational qualification, marital status, working experience, type of ICT gadgets they use and how significant is its use in carrying out their jobs, among others. 180 questionnaires were distributed to the respondents (60 for each bank) using a purposive sampling technique. This is because the author was interested in eliciting responses from individuals that have a relatively good knowledge of the concepts.

## **DATA PRESENTATION AND RESULTS INTERPRETATION**

### Presentation of Data

The methods used in analyzing the data were cross-tabulations and regression technique with the aid of Statistical Package for Social Sciences (SPSS) software due to its suitability in primary studies. The data collected are reported and analyzed in this section. Reliability test was first carried out to illustrate whether the chosen research method of analysis measured what was intended. From the test, the reliability coefficient was about 0.8 which was corroborated by significant F-value of 104.6 at 1%. This connotes that the chosen method of analysis is reliable.

Out of the 180 questionnaires distributed, 152 of them were retrieved representing about 84.4% response rate. About 36.8 % of the respondents were from UBA while Wema and UBN had 32.2% and 30.9% respectively. In terms of their sex distribution, about of 52.0% were females while the remaining 48.0% were males. The percentages (%) were approximated to one decimal place (see Table 1 below).

Table 1: Percentage Distribution of Sex across the Banks

Bank	Sex		Total (%)
	Male (%)	Female (%)	
UBA	15.8	12.1	36.8
Wema	15.1	17.1	32.2
UBN	17.1	13.8	30.9
Total	48.0	52.0	100.0

Source: Author's Field Survey, 2007.

From Table 2, it can be observed that the highest proportion of the respondents i.e. about 67.8% was in 26-32years age bracket followed by 33-39years age group with about 15.8% across the banks. While the least was in 40-46years age group with about 7.9% of the distribution.

Table 2: Percentage Distribution of Age across the Banks

Bank	Age (years)				Total %
	19-25 %	26-32 %	33-39 %	40-46 %	
UBA	4.6	28.9	3.3	0.0	36.8
Wema	2.6	23.7	5.9	0.0	32.9
UBN	1.3	15.1	6.6	7.9	30.9
Total	8.6	67.8	15.8	7.9	100.0

Source: Author's Field Survey, 2007.

With respect to their educational qualification, Table 3 shows that most of them have first degree (Higher National Diploma-HND and B.Sc) which represents about 62.5%, while 21.7% have Master degree and other professional qualifications. The least qualified among them had Ordinary National Diploma-OND.

Table 3: Percentage Distribution of Educational Qualification across the Banks

Bank	Highest Educational Qualification			Total %
	OND %	First Degree (HND/B.Sc) %	Masters & Others %	
UBA	5.9	23.7	7.2	36.8
Wema	7.9	19.0	5.3	32.9
UBN	2.0	19.7	9.3	30.9
Total	15.8	62.5	21.7	100.0

Source: Author's Field Survey, 2007.

From Tables 2 and 3, it could be deduced that the banks usually engage degree holders that are between 26-32years old. The aim could be to have a crop of workers (i.e. bankers) that can easily adapt to the changing technological ambience and also have considerable years of service for the banks to recoup their investment in terms of training. Nearly all the respondents (more than 98%) are computer literate and are quite conversant with the type of ICT gadgets used in their banks for their operations, as well as the essence of its adoption. As a result, presenting the data on them was not considered worthwhile.

Regression Results, Interpretation and Summary of Findings

The regression results presented in Table 4 shows that the chosen explanatory variables met their apriori signs and are statistically significant with the exception of sex .Clit was at 10%, others were at 1% as revealed by their T-values and P-values. This means that the sex of the bankers does not explain their aptness in ICTUSE. This is not too surprising as the banks do not usually discriminate against candidates

on gender grounds. From the above, it can be said that the main variables that influence the intensity of ICTUSE in the banks are; the bankers’ age, educational qualification, computer literacy and the type of ICT gadgets used. The F-value which is significant at 1% connotes that the model does not suffer specification bias while the coefficient of determination ( $R^2$ ) indicates that about 19.1 % variation in ICTUSE was jointly explained by the explanatory variables. The value appears small yet significant. In studies such as this (primary and multiple regression) emphasis is usually on the significance of individual explanatory variables (Gujirati, 1995).

Table 4: Regression Results for Model 1

Dependent variable ICTUSE	Independent variables					
	Constant	Age	Sex	Edu	Clit	Type
Coefficients	0.842	1.090	0.719	0.858	0.477	0.326
T-values	6.481	2.466	1.102	2.840	1.881	4.674
P-values	0.000	0.006 *	0.458	0.004*	0.064**	0.000*
R = 0.437; $R^2$ = 0.191; F value= 4.798 (0.000), Observations =152						

Note: \* and \*\* denotes significant at 1 and 10 % respectively.

Table 5 below, shows the results from the estimation of the dependent variables (Spid, Wopd and Pfit) that were related to ICTUSE. The coefficients were rightly signed and statistically significant at 5% level. This depicts that the intensity of ICT used in the banks (ICTUSE) has positive impact on speed of banking operations and efficient service delivery (Spid), workers productivity (Wopd) and bank’s profit level (Pfit). In terms of contribution, ICTUSE accounts for about 34.5%, 46.9% and 30.9% variations in Spid, Wopd and Pfit, respectively as shown by the  $R^2$  values. (F-value was not reported since the equations were simple regressions).

Table 5: Regression Results for Model 2

Dependent variable	constant	ICTUSE	R	$R^2$	Observations
Spid	3.814	0.607	0.587	0.345	152
T-value	11.377	1.984			
P-value	0.000	0.049*			
Wopd	2.448	1.892	0.685	0.469	152
T-value	3.87	2.002			
P-value	0.001	0.032*			
Pfit	0.906	0.197	0.556	0.309	152
T-value	7.893	1.895			
P-value	0.000	0.050*			

Note: \* denotes Significant at 5%.

The major findings of the study as revealed by the results presented in Tables 4 and 5 as discussed above can be summarized as follows: 1) The banks usually engage young degree holders. 2) Gender of the bankers does not affect their efficiency in the use of ICT in the banks. 3) Factors that influence the banks’ intensity of ICT usage include the bankers’ age, educational qualification, computer literacy and type of ICT gadgets used. 4) ICT usage has positive and significant impacts on the speed of operations and service delivery, productivity and profit level of the banks.

The implication of the findings are that emphasis should not be placed on gender of banks’ prospective candidates during recruitment instead attention should be focused on their educational qualification, age, and ability to operate ICT gadgets. And the banks should procure and install the type of ICT gadgets that will induce efficiency. This is because engaging educated young minds will help the banks to integrate them easily into the rapidly changing technological world and give the bankers sufficient time to contribute satisfactorily to the growth of their banks.



In addition, regular training should be given to the bankers from time to time to keep them abreast of the current innovations in the use of ICT. This will enhance their efficiency and quality of service delivery that will ensure customers retention and productivity, which will translate to the banks' profitability, *ceteris paribus*. This stance is essential especially in this era of reforms in the nation's financial sector where attention is no longer on the banks that have the required capital. This is because 25 banks in Nigeria have more than the stipulated 25 billion naira capital base. The key issue at moment is the ability of banks to retain their current customers as well as attract potential customers. This is mainly feasible in their efficient service delivery, which depend largely, on the premium placed on the use of ICT.

## **CONCLUSIONS**

The increasing use of ICT has caused the integration of various economic units in a way that has made banking operations to be highly ICT inclined and to benefit immensely from the gains in technological revolution. An empirical analysis was carried out to find out the roles ICT plays in enhancing the mode of operations of some selected banks in Nigeria employing primary data. The data were analyzed with cross-tabulations and regression technique. The study established the following: the gender of the bankers does not affect efficiency in ICT use; bankers' age, educational qualification, computer literacy and type of ICT gadgets, were significant in influencing banks' intensity of ICT usage. Also ICT was found to impact positively the speed of banking service delivery, as well as productivity and profitability. It was then recommended that the banks should train their workers from time to time to keep them abreast of the innovations in the use of ICT.

In addition, the need for the banks to procure quality ICT gadgets that will enhance efficiency and customers' retention, among others, was pointed out. This will ensure quality service delivery and productivity which is essential most especially in the country's banks post-consolidated era. This is because attention is now on the ability of banks to retain their existing customers and attract prospective ones, which is mainly a function of their efficient service delivery that depends on the use of ICT. Finally, the study recommends further empirical research to expound more on the roles of ICT and other forms of technological innovations to other sectors of the nation's economy such education, agriculture, health among others. This will help to further appreciate the germane roles modern technologies play in socio-economic advancement.

## **NOTES**

<sup>1</sup> All the Nigerian banks host their own website, which can be accessed.

<sup>2</sup> Details about the banks are available in their websites, viz: UBA (<http://www.ubagroups.net/about.asp>), UBN (<http://www.unionbankng.com/history.htm>) and Wema (<http://www.wemabank.com/network.htm>)

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