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## The Emergence of Internet Banking in Nigeria: An Appraisal

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**Abstract:** This study evaluates the tangible benefits of e-business as an organizational tool and its influence on banking activities, as well as customer satisfaction practices. Cross tabulations and Chi-square were used to analyse the data. The study reveals that there is a linear relationship between high-level automation of banking services and improvement in service delivery. Also, there exist a significant relationship between customer's choice of bank and implementation of e-business. Based on the findings, bank managers need to be knowledgeable and apply internet technologies in their banking activities. For the banking industry to move forward technologically, at a faster rate, there is need for the nation to be adequately connected to the global village provided by Internet facilities.

**Key words:** Internet, banking, e-business, satisfaction

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### INTRODUCTION

In the past few years, banking activities in Nigeria have increasingly depended on the development of Information and Communication Technology (ICT). This is speedily becoming a reality in the industrially and economically advanced parts of the world, with people who are far away being able to engage in formal and informal relationship, which would have required them to engage in travels that may take hours or days. Rising numbers of financial institutions are introducing and expanding their offerings of electronic banking products (Sciglimpaglia and Ely, 2002).

In service organization like banks, information flows more than physical items. In the commercial world, especially in most advanced societies today, money is rather carried in information storage medium such as cheques, credit cards and electronic means than in its pure cash form. Banks have augmented their distribution networks with transactional websites, which allow customers to open accounts, apply for loans, check balances, transfer funds and make and receive payment over the Internet. With this practice, it is believed that the less the pure cash that is used for transactions within a society, the more viable it is to conduct business and banking activities electronically.

Electronic Business is the use of Internet facilities to connect, facilitate and empower business process activities and effective flow of communication and collaboration within an organization and organization with its customers, suppliers, other business stakeholders and

the outside world electronically. E-business as a tool has transformed the traditional business practice and virtually every organization at present is an active user. The advent of the Internet has empowered consumers. Consumers can access a virtually unlimited selection of products, brands and sellers.

Customers insatiable appetite for efficient service had compelled financial institution to move fast to a more radical transformation of their business systems and models by embracing Internet banking (Ovia, 2001). The huge investment in Information Technology (IT) is justifiable, as bank managers have become IT savvy. According to Rose (2000) in a recent study by McKinsey consultants in the US estimated that roughly 9 million customers had signed up for online banking. Due to this fact many banks in Nigeria have been busy creating interfaces and building portals and it has become more of a competition and egoism rather than offering customers value added service thus making transaction very easy for them.

During the 1990's, the Banking sector had vast amounts of New Information Technologies (NIT). Up-growing banks expended huge sums on websites, sophisticated software packages, teleconferencing equipments, broadband networks, mobile communications and other digital technologies (Mbami, 1999). Such investments helped them keep abreast of competitors that were making similar expenditures. Today, many banks are strapped for resources and they need to be extremely selective about the technologies they fund, deploying

New Information Technologies (NIT) in ways that are most relevant to their business and strategic objectives including their service marketing efforts.

There is increasing demand for more profits, turnover of resources, guaranteed customer satisfaction and as well as new vision for strategic breakthrough in a competitive banking environment. As customers seek for multiple service providers for broad selection and convenience, bank also seek for streams of customers.

This study evaluates the tangible benefits of e-business, as an organizational tool and its influence on the banking service as well as customer satisfaction practices.

**Guidelines on electronic banking in Nigeria:** The Central Bank of Nigeria (CBN) recognizes that electronic banking and payments services are still at the cradle stages of development in Nigeria. Arising from the three major roles of the CBN in the areas of monetary policy, financial system stability and payments system oversight, the CBN Technical committee on E-banking has produced a report, which anticipates the achievements of CBN's core objectives toward electronic banking and payment.

The Guidelines are expected to transform the future conduct of financial institutions in E-banking and electronic payments delivery. A detailed report of the Technical Committee on e-banking which resulted in these Guidelines, is available below (CBN, 2003).

**Technology and security standards:** CBN will monitor the technological acquisitions of banks and all other related investments, which exceed 10% of free funds, to subject such to approval. Where banks use third parties or outsource technology, they are required to comply with the CBN guidelines.

**Standards for computer networks and internet:**

- Networks used for transmission of financial data must be demonstrated to meet the requirements specified for data confidentiality and integrity.
- Banks are required to deploy a proxy type firewall to prevent a direct connection between the banks back end systems and the internet.
- Banks are required to ensure that the implementation of the firewall addresses the security concerns for which they are deployed.
- For dial up services, banks must ensure that the modems do not circumvent the firewalls to prevent direct connection to the bank's end system.

- External devices such as Automated Teller Machines (ATMs,) Personal Computers, (PC's) at remote branches, kiosk, etc. permanently connected to the bank's network and passing through the firewall must at the minimum address issues relating to non-repudiation, data integrity and confidentiality. Banks may consider authentication via Media Access Control (MAC) address in addition to other methods.
- Banks are required to implement proper physical access controls over all network infrastructures both internal and external.

**Standard on protocols:** Banks must take additional steps to ensure that while the web ensures global access to data enabling real time connectivity to the bank's back-end systems, adequate measures must be in place to identify and authenticate authorized users when limiting access to data as defined by the Access Control List.

Banks are required to ensure that unnecessary services and ports are disabled.

**Standards on Application and System Software:**

- Electronic banking applications must support centralized (bank-wide) operations or branch level automation. It may have a distributed, client server or three tier architecture based on a file system or a Database Management System (DBMS) packages. Moreover, the product may run on computer system of various types ranging from Personal Computers, open systems and proprietary main frames.
- Banks must be mindful of the limitations of communications for server/client-based architecture in an environment where multiple servers may be more appropriate.
- Banks must ensure that their applications interface with a number of external sources and that applications deployed can support these external sources (interface specification or other CBN provided interfaces) or provide the option to incorporate the interfaces at a later date.
- A schedule of minimum data interchange specifications will be provided by the CBN.
- Banks must ensure continued support for their application in the event the supplier goes out of business or is unable to provide service. They should ensure that at a minimum, the purchase agreement makes provision for this possibility.
- The bank's Information System (IS) infrastructure must be properly and physically secured. Banks are required to develop policies setting out minimum standard of physical security.

- They are required to identify an ICT compliance officer whose responsibilities should include compliance with standards contained in these guidelines as well as the bank's policies on ICT.
- Banks should segregate the responsibilities of the Information Technology (IT) security officer group which deals with information systems security from the IT division, which implements the computer systems.

#### **Standards on delivery channels**

**Mobile telephony:** Mobile phones are increasingly being used for financial services in Nigeria. Banks are enabling the customers to conduct some banking services such as account inquiry and funds transfer. Therefore the following guidelines apply:

- Networks used for transmission of financial data must be demonstrated to meet the requirements specified for data confidentiality, integrity and non-repudiation.
- An audit trail of individual transactions must be kept.

**Automated Teller Machines (ATM):** In addition to guidelines on e-banking the following guidelines specified for data confidentiality and integrity.

- Networks used transmission of ATM transaction must be demonstrated to meet the guidelines specified for data confidentiality and integrity.
- In view of the demonstrated weakness in the magnetic stripe technology, banks should adopt the chip (smart card) technology as the standard, within 5 years. For banks that have not deployed ATMs, the expectation is that chip based ATMs would be deployed. However, in view of the fact that most countries are still in the magnetic stripe conversion process, banks may deploy hybrid (both chip and magnetic stripe) card readers to enable the use of international cards that are still primarily magnetic stripe on ATMs.
- Banks will be considered liable for fraud arising from card skimming and counterfeiting except where it is proven that the merchant is negligent. However, the cardholder will be liable for frauds arising from PIN misuse.
- Banks are encouraged to join shared ATM networks.
- Banks are required to display clearly on the ATM machines, the Acceptance Mark of the cards useable on the machine.

- All ATMs not located within bank premises must be located in a manner to assure the safety of the customer using the ATM. Appropriate lighting must be available at all times and a mirror may be placed around the ATM to enable the individual using the ATM to determine the locations of persons in their immediate vicinity.
- ATMs must be situated in such a manner that passers by cannot see the key entry of the individual at the ATM directly even if security devices are used.
- ATMs may not be placed outside buildings unless such ATM is bolted to the floor and surrounded by structures to prevent removal.
- Additional precaution must be taken to ensure that any network connectivity from the ATM to the bank or switch was protected to prevent the connection of other devices to the network point.
- Non-bank institutions may own ATMs, however such institutions must enter into an agreement with a bank for the processing of the transaction at the ATM. If an ATM is owned by a non-bank institution, processing banks must ensure that the card readers, as well as, other devices that capture or store information on the ATM do not expose information such as the PIN number or other information that is classified as confidential. The funding (cash in the ATM) and operation of the ATM should be the sole responsibility of the bank.
- Where the owner of the ATM is financial institution, such owner must also ensure that the card reader as well as other devices that capture information on the ATM does not expose/store information such as the PIN number or other information that is classified as confidential to the owner of the ATM.
- ATMs at bank branches should be situated in such a manner as to permit access at reasonable times. Access to these ATMs should be controlled and secured so that customers can safely use them within the hours of operations. Deployers are to take adequate security steps according to each situation subject to adequate observance of standard security policies.
- Banks are encouraged to install cameras at ATM locations. However, such cameras should not be able to record the keystrokes of such customers.
- At the minimum, a telephone line should be dedicated for fault reporting and such a number shall be made know to users to report any incident at the ATM. Such facility must be manned at all times the ATM is operational.

**Internet banking:** Banks should put in place procedures for maintaining the bank's Web site which should ensure the following: -

- Only authorized staff should be allowed to update or change information on the Web site.
- Updates of critical information should be subject to dual verification (e.g., interest rates)
- Web site information and links to other Web sites should be verified for accuracy and functionality.
- Management should implement procedures to verify the accuracy and content of any financial planning software, calculators and other interactive programs available to customers on an Internet Web site or other E-banking service.
- Links to external Web sites should include a disclaimer that the customer is leaving the bank's site and provide appropriate disclosures, such as the extent, if any, of the bank's liability or transactions or information provided at other sites.
- Banks must ensure that the Internet Service Provider (ISP) has implemented a firewall to protect the bank's Web site where outsourced.
- Banks should ensure that installed firewalls are properly configured and institute procedures for continued monitoring and maintenance arrangements are in place.
- Banks should ensure that summary-level reports showing web-site usage, transaction volume, system problem logs and transaction exception reports are made available to the bank by the Web administrator.

**The Nigeria experience:** The world has become a global village with the array of development. On the information superhighway of course, Nigeria represent a part of this development. Assisted by the deregulation measure introduced in the 1980s, there was an astronomical increase in the number of banks both merchant and commercials. By 1989, the number of banks had increased from 32 to 81 together with numerous non-bank financial institutions. Prior the current banking reformation programme by the Federal Government, there were about 82 approved commercial and merchant banking institution in Nigeria by the Central Bank of Nigeria (CBN) even after the era of distress syndrome that swept away the industry in the mid 1990s leading to the collapse of many banks and finance houses. The financial restructuring of 2005, which necessitate N25 billion as minimum capital base, now reduced the number of commercial banks to 25. The objective of the consolidation process is to strengthen the financial sector and to enable them to face foreign competition in the not too distant future.

The situation in Nigeria produced an interesting scenario. The global phenomenon in the development was accentuated by keen competition at home in view of the unprecedented upsurge in the number of banks and branches. There was the need to innovate and modernize banking operation in the face of increased market pressure and customers demand for improved service delivery and increased convenience. The adoption of Internet and electronic banking therefore become an imperative.

Now, in a world, which is becoming increasingly open as a result of the Internet and the World Wide Web (WWW), Internet banking has been gaining ground around the globe. This offers banking institutions a new frontier of opportunities and challenges further augmenting competition in the global banking market. Computerization in the Nigeria banking industry was introduced first in the 1970s by Society General Bank [Nigeria] Limited. Until the mid 1990 few banks that were computerized adopted the Local Area Network [LAN] within the bank branches. The sophisticated one among the bank then implemented the WAN by linking branches within cities while one or two implemented intercity connectivity using leased lines.

Today, the scenario is different, because banks have not only adopted computerization but have advanced from very simple and basic retail operations of deposit and cash withdrawal as well as cheque processing, to the delivery of sophisticated products such as foreign exchange and internet rate swaps which is effectively enhanced through the Internet. The objective of Internet banking are:

- Customer can verify their accounts online without having to leave the comfort of their offices, homes or wherever there is a phone and computer system.
- To provide up-to-date information to customers
- To provide a secured communication link between the customers and the banks
- The system must be secured to protect against intruders, hackers and/or obstruction that can affect the integrity of the system and data.
- To reduce the loss associated with cash damages
- To increase the array of products and service available to customers through product innovation and product differentiation.

**E-business and customer satisfaction:** Satisfaction is one of the most important consumer reactions in Internet shopping and its importance is reflected in the ability to help build up customer loyalty (Aderson and Srinivasan, 2003), enhance favourable word of mouth (Bhattacharjee, 2001), leads to repeat purchase (Reibstein, 2002) and

improved the company's market share and profitability (Reichheld and Schefter, 2000). Customer satisfaction has received a great deal of attention for decades now. It is one of the most unassailable concepts of modern management rhetoric. Not only does the idea of satisfying customers have a clear, common sense appeal, it is generally believed that customer satisfaction leads to loyalty and translates to higher future profits. For these and other reasons, customer satisfaction practices have become one of the core prescriptions for managers and organizations.

Indeed, for many banks, customer satisfaction has become the guiding principle, as they increasingly initiate all manner of strategies and process under its banner (Pine *et al.*, 1995). The basic idea is sound and customer oriented as it is meant to provide superior customer value and thereby superior banking value. However, corporate customer satisfaction practices, which comprise how customer satisfaction is defined and measured and how the resulting knowledge is used in the organization, seem to be losing its effectiveness for both banks and their customers alike. In most cases, banks can get stuck in a customer satisfaction rut.

Although many banks employ rigorous and extensive customer satisfaction measurements, they may still end up measuring wrong variables, using the information in reactive ways. The concept of customer satisfaction has been wrongly equated with the concept of quality. For example, the present trends in banking industry, place more importance on prevention of dissatisfaction, which is an internal focus on fixing what has gone wrong, rather than increasing satisfaction, which is an external focus on what should go right. Many banks take a self-perpetuating pattern of reinforcing practices that are not truly customer-oriented while those that are customer-centered remain undiscovered and unexplored. Managers who wish to climb out of this rut must move beyond the mere measurement of quality and satisfaction and refocus their customer satisfaction practice on actual customer experience. They then must formulate a comprehensive strategy for using the knowledge throughout the organization.

This study examines the IBTC-Chartered Bank as a case study. This study provides greater understanding of customer satisfaction through e-banking system. The banking industry or sector provides an especially apt concept for such a discussion, as it is generally recognized as being one of the sectors concerned with customer satisfaction. Most banks spend a great deal on customer satisfaction market research and their interpretation, measurement and use of that information is sophisticated and recognized as strategically important by

senior managers. Although IBTC-Chartered Bank is regarded as doing well in terms of customers' satisfaction, its goal is to offer guaranteed customer satisfaction as well as becoming a customer satisfaction leader.

During the mid-1990's, IBTC-Chartered Bank embarked upon a major initiative to improve customer satisfaction. Although the bank used a wholistic approach, the focus was primarily on improving service quality. As a result, from 1991-1996 IBTC-Chartered Bank become one of the top ten banking firms in the Nigerian Banking Quality Study (NBQS). By the end of the decade, IBTC-Chartered bank's customer satisfaction focus had dropped somewhat but was re-established in 2000, following the organization a change in its customer satisfaction survey. A new strategic agenda was initiated, with the goal of becoming number satisfaction survey. A new strategic was initiated, with the goal of becoming number one in the industry in customer satisfaction by 2004. A high profile, cross-functional customer satisfaction board was established with the mandate to examine, challenge, change and/or direct any aspect of company activities detrimental to the delivery of the target services for customer satisfaction.

## **METHODS OF ANALYSIS**

The data were collected from the head office of the IBTC-Chartered Bank Plc and some of its branches. Primary data was mainly used and was obtained through a questionnaire survey. It was administered to 150 members of staff of the bank and 94 responses were retrieved giving a response rate of 63%. The data collected were analysed, using cross tabulations and the Pearson Chi-square test. ANOVA and Regression Analysis were used to test whether there exist a linear relationship and the level of linearity between high level of automation of banking services and improvement in delivery of services in the bank under consideration.

## **RESULTS AND DISCUSSION**

In Table 1, 33% of the respondents took the E-business technology to be the use of computers. 19% took it to be telecommunication eased enterprise and 31% took it to be the use of Internet technologies through the intranet and extranet.

In Table 2, among 67% respondents who agreed that E-business implementation affects customers choice of bank, 18.4% of the respondents have witnessed few cases as such, while 44.9% of the respondents have witnessed many cases where a customers chose a bank because of the bank's mode of operation.

Table 1: Distribution of respondents understanding of e-business portals powered by ICT

		Frequency	Percent	Valid (%)	Cumulative (%)
Valid	Computer	32	32.0	33.0	33.0
	Telecommunication	19	18.4	19.0	52.0
	Internet (intranet/extranet)	30	30.1	31.0	83.0
	All of the above	16	16.5	17.0	100.0
	Total	97	97.1	100.0	
Missing	System	3	2.9		
Total		100	100.0		

Source: Filed study. May 2004

Table 2: Tabulation of customer's choice by level of e-business implementation

		% of knowledge			
		Many (%)	Few (%)	NONE (%)	Total (%)
E-business investment	Yes count	44	18	4	66
	% within application of E-biz affect	66.7	27.3	6.1	100.0
	% within do you	69.8	78.3	33.3	67.3
	% of total	44.9	18.4	4.1	67.3
	No count	19	5	8	32
Total	% within application of e-biz affect	59.4	15.6	25.0	100.0
	% within application of e-biz affect	30.2	21.7	66.7	32.7
	% of total	19.4	5.1	8.2	32.7
	Count	63	23	12	98
	% within application of e-biz affect	64.3	23.5	12.2	100.0
	% of total	64.3	23.5	12.2	100.0

Source: Field study, May 2004

Table 3: Chi-square tests-the relationship between customers' choice of bank and implementation of E-business technologies

	Value	df	Asymp. Sig. (2-sided)
Pearson chi square	7.737	2	0.21
Likelihood ratio	7.313	2	0.26
Linear-by-linear association	2.968	1	0.85
Number of valid cases	98		

**Hypothesis:** Ho: there is no significant relationship between customer choice of bank and implementation of e-business technologies.

Hi: there exists a significant relationship between customer's choice and e-business technologies implemented.

**Decision:** Since  $\chi^2 c = 7.737$

Critical region =  $\chi^2 t (0.05, 2) = 5.99$

Hence,  $\chi^2 c > \chi^2 t$  i.e  $7.737 > 5.99$

Therefore, Ho will be rejected and Hi accepted. The conclusion is that there exist a significant relationship between customer's choice of bank and implementation of E-business (Table 3). The model summary of the result concerning the relationship between level of automation of banking services and improvement of service delivery shows a correlation coefficient (R) of 0.383. This indicates that there exists a positive relationship between high-level automation of banking services and service delivery.

Table 4: ANOVA-relationship between high-level automation of banking services and service delivery

Model	Sum of squares	df	Mean square	F	Sig.
Regression	33.474	1	33.474	16.502	
Residual	194.730	96	2.028		
Total	228.204	97			

(Table 4) Also, R-squared of 0.147 implied that 14.7% improvement in service delivery of the bank is accounted for by high level of automation of its services.

**Hypothesis:** Ho: there is no linear relationship between high-level automation of banking services and improvement of services delivery.

Hi: there exists a linear relation between high level of automation of banking services and improvement in service delivery.

**Critical region:** If P-value (Sig.)  $\leq 0.05$  reject Ho Otherwise reject Hi

Since P (Sig.) value  $0.00 < 0.05$  at 5% level of significance, Ho is rejected and conclude that there is a linear relationship between high level automation of banking service and improvement in service delivery at IBTC-Chartered Bank Plc.

### CONCLUDING REMARKS

The study reveals that there is a linear relationship between high-level automation of banking services and

improvement in service delivery. Also, there exist a significant relationship between customer's choice of bank and implementation of e-business. Online transaction processing play a vital role in e-commerce and its basic activities include data entry, transaction processing, database maintenance, document and report generation and enquiry processing.

It is obvious that an important outcome of every enterprise in this millennium will be computer-based knowledge, which infers using Internet technologies in its everyday transactions and general operations. Therefore, internet technologies is needed by at least banking firms, so that they will feel a sense of belonging in this computer-rich society of this millennium.

It is our belief therefore that, the use of Internet-worked technologies in Nigerian banks will yield positive results so that we can live longer, be healthier and access each individual banking activity with ease and adequate convenience. Consequently, upon this belief, bank managers need to be knowledgeable and apply Internet technologies in their banking activities. In fact, bank managers need to follow the advice of one old Japanese proverb that says: Exploit the inevitable. For the banking industry to move forward technologically, at a faster rate, there is need for the nation to be adequately connected to the global village provided by Internet facilities.

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