

## Information and Communication Technology (ICT) and Banking Industry

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**Abstract** Information and Communication Technology, the language of the new age and its grammar which is Science has become an indispensable and veritable tool for enhancing effectiveness and efficiency in all other aspects of life. Banking industry has learnt the grammar and understands the language of the new age and tremendously transforms the Industry from what it used to be to the economic mover of the whole wide world, through the magic hands of Computer Science innovations. The adoption of ICT in banks has improved customer services, facilitated accurate records, provides for Home and Office Banking services, ensures convenient business hour, prompt and fair attention, and enhances faster services. The adoption of ICT improves the banks' image and leads to a wider, faster and more efficient market. It has also made work easier and more interesting, improves the competitive edge of banks, improves relationship with customers and assists in solving basic operational and planning problems. This paper work analyses the impacts made by the Information and Communication Technology in the Banking Industry, and some of the unexploited areas of the Information and Communication Technology in the industry.

**Keywords:** Information, Communication, Technology, Banking & Industry

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### Introduction

New age business environment is very dynamic and undergoes rapid changes as a result of technological innovation, increased awareness and demands from customers. Business organizations, especially the banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate. Information and Communication Technology (ICT) is at the centre of this global change. Archimedes said, "Give me a lever long enough and a fulcrum on which to place it and I shall move the whole world". (Archimedes, [www.brainyquotes.com](http://www.brainyquotes.com)). The lever he was taking about then was not understood, until the invention of Information and Communication Technology.

The application of information and communication technology concepts, techniques, policies and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and indeed a prerequisite for local and global competitiveness. ICT directly affects how managers decide, how they plan and what products and services are offered in the banking industry. It has continued to change the way banks and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of service delivery.

Harold and Jeff (1995) contend that financial service providers should modify their traditional operating practices to remain viable in the 1990s and the decades that follow. They claim that the most significant shortcoming in the banking industry today is a wide spread failure on the part of senior management in banks to grasp the importance of technology and incorporate it into their strategic plans accordingly.

Woherem (2000) claimed that only banks that overhaul the whole of their payment and delivery systems and apply ICT to their operations are likely to survive and prosper in the new millennium. He advises banks to re-examine their service and delivery systems in order to properly position them within the framework of the dictates of the dynamism of information and communication technology. The banking industry has witnessed tremendous changes linked with the developments in ICT over the years.

The quest for survival, global relevance, maintenance of existing market share and sustainable development has made exploitation of the many advantages of ICT through the use of automated devices

imperative in the industry. This study evaluates the response of Nigerian banks to this new trend and examines the extent to which they have adopted innovative technologies in their operations and the resultant effects.

### Information and Communication Technology

Information Technology (IT) is the automation of processes, controls, and information production using computers, telecommunications, software and ancillary equipment such as automated teller machine and debit cards. It is a term that generally covers the harnessing of electronic technology for the information needs of a business at all levels. Communication is the conveyance or transmission of information from one point to another through a medium.

An example of how ICT has had an impact on the Banking Industry is that its emergence allows banks to apply credit-scoring techniques to consumer credits, mortgages or credit cards. Hence, products that used to be highly dependent on the banks' evaluation of its customers have now become more standardized. Other examples of ICT impact on the Banking Industry include the increased process efficiency, which can reduce costs in banks, and the branch renewal, where focus is gradually shifting away from traditional brick and mortar banks towards the dual-bank concept presented earlier.

The tendencies above have also produced changes in the structure of bank income. As a result of increased competition that has lowered margins in lending operations (the banks' traditional business), banks have diversified their sources of income and rely increasingly on income from fees services rather than interest rate spreads. Fees charged for services include typical banking activities like payment transactions, safe custody and account administration.

Data storage and retrieval is another wonderful innovation brought into the Banking Industry, where specialized software is engaged to create database to be manipulated by Database Management Software (DBMS). A single database created could be used for several purposes within the system in order to eliminate data redundancy.

### ICT Infrastructure Used by Banks

This section presents and analyses the survey data of some selected Banks in Nigeria.

The table below shows the survey data of some selected Banks in Nigeria and their uptake in some ICT infrastructures

Serial numbers	ICT infrastructures		Percentage of Nigeria Banks that use a particular ICT infrastructure within year 2000 to year 2008.		
			2000 – 2002	2003 – 2005	2006 - 2008
1	Internet Access		27%	88%	91%
2	Internal Network	Wire based	68%	82%	92%
		Wireless	08%	19%	28%
3	SMS Alert		NIL	22%	98%
4	Substitution of Postal mail		18%	38%	88%

5	ICT Security measures	62%	81%	94%
6	Authentication	33%	76%	85%
7	Automated Payment System	1%	28%	87%

Source: Research Survey, 2008

**Internet Access:** An important indicator of the general uptake of Information and Communication Technology (ICT) in the Banking Industry relates to the use and availability of Internet. Internet access is a precondition for e-Business, as this is the main channel for e-banking. The general availability of Internet allows for the analysis of overall ICT-readiness in the Banking Industry. The Table shows that 91% of Banks studied in Nigeria have access to the internet within year 2006 and 2008, While 27% and 88% from year 2000 to 2002 and from year 2003 to 2005 respectively. The drastic change that occurred from 27% to 88% from year 2000 to 2002 and from year 2003 to 2005 respectively was as the result of ICT awareness competitive products introduced by some the so called "new generation banks". Virtually all other banks also braced up to satisfy their customers and there was general improvement in the services and products of Banking Industry.

**Use of Internal Network:** The application of networks is a vital part of an effective ICT-enabled system, which is especially true in the case of banks with a branch network. Local Area Network (LAN) may also be seen as a basic indicator of the minimum infrastructure required to enable companies to conduct e-banking at a substantial level. Wire-based LAN is currently the dominating technology. The survey shows that 92% banks surveyed use wire-based LAN from year 2006 to 2008. The fact that LAN is a relatively low-tech and easily attainable ICT solution, would to some extent explain the wide coverage of this technology from year 2000 to 2008. Wireless LAN is a relatively new technology in the Banking Industry, and is used to permit bank employees to access network resources from nearly any convenient location. The fact that, wireless LAN is relatively new technology accounts for its low percentage uptake in Banking Industry.

**Use of SMS alert:** Instant notification of transactions made was another innovation brought by ICT through the use of smart phone in conjunction with the internet facility in the Banking Industry. Virtually all banks studied in Nigeria use SMS-Alert, except some of the Micro-finance Banks. It was an ICT infrastructure that recorded no patronage between year 2000 and 2002.

**Substitution of postal mail:** The Banking Industry is currently being renewed in many areas. One of these areas relate to the digitalization of formerly paper-based processes. Electronic mail is increasingly being applied for especially non-legal correspondence like account statements, marketing and sales. More than 80% banks surveyed have substituted electronic mail with old postal mail within year 2006 to 2008. This outcome shows that, efficiency gains from electronic mail are yet to be reaped and indicates that the Industry is a bit fragmented in its uptake of electronic mail as means of communication.

**ICT security measures:** The security issue is of special concern in the Banking Industry, as banking is highly based on trust from its customers. Hence, the risk of hackers, denial of service attacks, technological failures, breach of privacy of customer information, and opportunities for fraud created by the anonymity of the parties to electronic transactions all have to be managed. Depending upon its nature and scope, a breach in security can seriously damage public confidence in the stability of a financial institution or of a nation's entire banking system. Hence, by introducing the appropriate security measures and putting security concerns at ease, the BI might be able to attract the segments among consumers who previously were not inclined to use e-banking. Furthermore, it is also in the banks' own interest to improve security, as digital fraud can be costly both in financial losses, and in terms of the damage it does to the brand of the bank in question.

**Authentication:** The common concern among users of e-banking is related to the authentication of users

and data connections. The use of digital signatures is not as common as PIN codes or encryption, and reason is the fact that digital signature is relatively new technology. The research even shows that none of the studied banks uses digital signature as the form of authentication, but the up-take in other types of authentication is generally high, up to 85% within the year 2006 and year 2008.

**Automated Payment System:** Devices used in Automated Payment Systems include Automatic Teller Machine (ATM) and Electronic Funds Transfer. ATM still ranked higher in its spread than Electronic Funds Transfer, Low rate of spread of this technology might be due to cost, fear of fraudulent practices and lack of facilities necessary for their operation. But generally speaking, the adoption of Automated Payment System increased dramatically. The table shows the increase from 28% to 87% within the range of 3-years.

### **Effects of Information and Communication Technology (ICT) on Banking Industry**

Agboola (2001) studied the impact of computer automation on the banking services in Lagos and discovered that Electronic Banking has tremendously improved the services of some banks to their customers in Lagos. The study was however restricted to the commercial nerve center of Nigeria and concentrated on only six banks. He made a comparative analysis between the old and new generation banks and discovered variation in the rate of adoption of the automated devices. Aragba-Akpore (1998) wrote on the application of information technology in Nigerian banks and pointed out that IT is becoming the backbone of banks' services regeneration in Nigeria. He cited the Diamond Integrated Banking Services (DIBS) of Diamond Bank Limited and Electronic Smart Card Account (ESCA) of All States Bank Limited as efforts geared towards creating sophistication in the banking sector. Ovia (2000) discovered that banking in Nigeria has increasingly depended on the deployment of Information Technology and that the IT budget for banking is by far larger than that of any other industry in Nigeria. He contended that On-line system has facilitated Internet banking in Nigeria as evidenced in some of them launching websites. He found also that banks now offer customers the flexibility of operating an account in any branch irrespective of which branch the account is domiciled. Cashless transactions were made possible in our society of today.

The mover of the economy (Banking Industry) is now well positioned to met-up with the new challenges from the costumers, competitors and even from the nation's economy with right tool in their hand to reach limitless point of success. The Industry is now growing on daily basis with respect to new innovations that are coming out in the world of technology.

### **Conclusion**

Adoption of ICT has influenced the content and quality of banking operations. From all indications, ICT presents great potential for business process reengineering of Nigerian Banks. Investment in information and communication technology should form an important component in the overall strategy of banking operators to ensure effective performance. It is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors. The banking industry in Nigeria presents ICT providers with great opportunity to market their innovations. Success in this area however depends on how they can customize their services to appeal to the ready minds of various stake holders in the industry.

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