

## **Impact and Challenges of Information Communication Technology Adoption in the Tanzanian Banking Sector**

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**DOI Link:** <http://dx.doi.org/10.6007/IJARBSS/v3-i2/100>

**Published Date:** 16 February 2013

### **Abstract**

The banking sector across the globe is embracing ICT technologies and using as part of business strategy for expansion, revenue increase, extension of customer network and creating competitive advantage among banking institutions. This paper is an effort to investigate the impacts and challenges of ICT adoption in the Tanzanian banks. The population is forty eight respondents, four managers were selected from twelve banks and out of the 48 questionnaires distributed, 42 were collected i.e 87.5% response, purposive sampling was used and the data collected was analyzed using SPSS, the researcher employed use of mean and standard deviation. The study found out that there is a need for bankers to educate public in the use of online banking products, invest more into ICT infrastructure and the government to reduce tax of ICT gadgets. This study recommends that individual technologies need to be investigated, impact of adopting other individual technologies, profitability and performance issues should also be investigated to open up and clear the way for policy and business decisions.

**Keywords:** ICT; information communication technology, electronic banking, impact, challenges

## **1.0 Introduction**

Adoption has been explained as a decision to make full use of an innovation as the best course of action (Rogers, 1983). The adoption of ICT is defined as a collective term for a wide range of software, hardware, telecommunications and information management techniques, applications and devices, that are used to create, produce, analyze, process, package, distribute, receive, retrieve, store, and transform information (Brady et al.,2002).

Syed, (2010), argued that almost every private as well as nationalized banks in India, are providing IT based products and services to their customers and co-operative banks have in the last decade entered in the IT market. The Financial Reforms that were initiated in the early 90s and the globalization and liberalization measures brought in a completely new operating environment to the Banks that were till then operating in highly protected milieu. Services and Products like “Anywhere Banking”, “Tele-Banking”, “Internet Banking”, “Web Banking”, “E Banking”, “e-commerce”, “e-business”, etc. have become the buzzwords of the day and the Banks are trying to cope with the competition by offering innovative and attractive packaged technology-based services to their customers.

Technological developments particularly in the area of Telecommunications and Information Technology are revolutionizing the way business is done in Ghana. ICT has impacted banking operations positively on the activities rendered and boosted the performances of businesses in Ghanaian industry. However Internet banking and online banking is not yet developed in Ghana Amaoko, (2012).

Singh (2002) opined that technology has introduced new ways of delivering banking services and products to the customers, such as ATMs, and internet banking (IB). Hence banks have found themselves at the forefront of technology adoption for the past three decades. These changes and developments in the banking industry have impacts on serves quality, future of the banking activities, and consequently its continually competitive ability in the world markets since going along with technology is one of the most important factors of economic organizations success in general and banks in particular (Nyangosi, 2009). This motivates banks to spend more on technology and information to achieve maximum returns and attract large number of clients.

This paper first reviews the existing literature on ICT on banking and then examines impact and challenges facing ICT adoption in Tanzania banking industry. It also links personal characteristics of the respondents (work experience in the bank and educational qualification). This analysis of data will help to identify the views of different segments of employee and suggest effective strategic planning for the future ICT technologies on banks in developing countries like Tanzania.

Due to innovative advancements in banking technologies, internet banking, online banking and e-banking is not properly used by customers in accessing banking products and services and therefore the purpose of the study is to investigate why online and internet banking is not well utilized and as to whether the ICT policy is providing legal frame work and green light in adopting the above technologies and in curbing security and fraud cases to help banks reduce money losses.

The geographical scope of the study is based in Dar es salaam Tanzania and the issues to be covered are managements perception, types of technologies adopted, challenges faced and the existing ICT policies in place.

### **1.1 Objectives**

The objectives of this study are as follows

- i. The explore the impact of IT adoption in banking sector
- ii. To examine the challenges on the usage of IT in banking sector

### **2.0 Literature review**

Advancement in technology has brought many changes and competition among banks and non-bank financial institutions which raises concern as to why some people adopt one distributional channel and others do not. New services are difficult to evaluate where quality of trustworthiness dominates (Patricio, 2003). It is important to study the impact of technology based on bankers' perceptions and behavior (Lymeropoulos & Chaniotakis, 2004). IT-based distribution channels reduce personal contact between the service providers and the customers, which inevitably leads to a complete transformation of traditional bank customers relationships (Barnes and Horwlett, 1998).

Sonja (2010) researched on the effects of computerization on saving and credit cooperatives in Uganda and found out that Technology is likely to increase the efficiency, outreach and sustainability of microfinance institutions. ICT's has been found to promote the dual objectives of micro finance- sustainability and outreach to the poor people and noted that Management information systems are essential in order for a microfinance institution to operate efficiently. In the study several managers stated that they are not able to use all the functions the system offers such as backup systems or different financial reports, the study found out that technology has positively influenced SACCOs by making daily work easier and quicker and recommended that as technology evolves, more training is required to ensure necessary human resource capacity and it is possible to transfer technology from one country to another and except the local capabilities to be existent.

(Amaoko 2012) in his research on the impact of ICT on banking operations in Ghana, ICT has contributed positively to the provision of banking services and the growth of the Ghanaian banking industry. Internet banking and on-line banking is not yet developed in Ghana. The study recommended that banks should develop user friendly systems and applications for general population, Government and banks should play a key role in enhancing ICT infrastructure, put in place incentives like tax reduction, make PC available and affordable for every Ghanaian. Financial institutions should offer programs to reassure customer's safety with regards to ICT through sensitization, workshops and support the skills development among bank personnel, there should be a central monitoring unit permanently manned by personnel to check the operations of all the bank's ATM's so that shortage of funds, occasional shut downs, seizure of electronic cards etc. are handled with dispatch. Lastly the banking institutions should also come out with more electronic products and services to reduce the

turnaround time of customers. Such products will give them the opportunity to sit at the comfort of their homes, workplaces and transact business with the banks.

Morufu and Taibat (2012) researched on banker's perception of electronic banking in Nigeria purposely to find out how bankers perceive the benefits and threats associated with electronic banking by investigating banks employees' perception on electronic banking and its implications on bank service delivery. The study concluded that 'minimizes inconvenience' and 'government access to data' appear as the most important benefit and risk respectively while 'reduces HR requirements' and 'charges high costs for services' are the least important benefits and risk associated with electronic banking.

According to Ahamad kaleem (2008) bankers in Pakistan perceive electronic banking as a tool for minimizing inconvenience, reducing transaction costs and saving time. Similarly, they believe that electronic banking increases the chances of government access to public data, increases the chances of fraud and that there is lack of information security.

In the study conducted by Nyangosi and Arora (2009) focused on the adoption of internet banking in Kenya, the perceived usefulness of mobile banking, analyze the banking services provided by internet and mobile phone banking, the study revealed that ATM technology was the most available technology in user's banks. Therefore internet banking was gained popularity and become vital in financial transaction events, IT state is at initial stages and the study was useful to institutions planning to offer digital financial services especially internet banking and mobile banking to know the extent it can be used by customers and the services already in the market. Also the regulatory authorities to know the area of much interest in provision of banking services through internet and mobile phones.

Information Technology has tremendously contributed to the expansion of the banking networks and range of the offered services during recent years (Evadat and Kozak, 2005). Information Technology or Information and communication (ICT) is the combination of computer, electronics and telecommunication equipment to generate information (Oladejo, 2007). Agboola (2006) observed that some payments are now being automated and absolute volume of cash transactions have declined under the impact of electronic transaction brought about by the adoption of ICT to the payment system especially in the developed countries. Emmanuel and Sife (2008) observed that positive effects of ICT have continually been noted in business, production, education, politics, governance, culture and other aspect of human life. This view is corroborated by Agboola (2004) and Ayo (2006) that the growing rate of ICT particularly the internet has influenced at an exponential rate, on line interaction and communication among the generality of the populace.

The increase in emerging Information Technology has made banking services become more and more automated and less paper work than in the past as averred in the Central Bank of Nigeria reports and statistical bulletins (2005, 2006, 2007 and 2008) and other literature on banking and finance (Kozak 2005; Ayo 2006; Oladejo 2007; Keramati, 2007).

Bankers' perceptions of the benefits of electronic banking have attracted the attention of many researchers, especially in recent years. Banks normally assign their managers responsibility for the promotion of the use of electronic channels to customers

(Ilymperopoulos, and Chaniotakis, 2004). This is in line with the view of Moutinho, (1997) that the managers input as delivery staff is important and that is the manager's responsibility to ensure that branch staffs are professional, well-trained and knowledgeable about the range of services provided by bank. Furthermore, Moutinho and Philips (2002) found that Scottish bank managers considered efficiency and enhancement of customer service to be perceived advantages of Internet banking. Similarly, Aladwani (2001) highlighted faster, easier, and more reliable service for customers, and improvement of the bank's competitive position to be the most important drivers of online banking among bank and IT managers in Kuwait.

Madueme Ifeoma Stella (2010) researched on evaluating banking productivity and ICT using Translog production function in Nigeria, the results showed that bank output such as loans and other assets increased significantly to charges in expenditure on Information communication technology. ICT labor expenses impacted more on bank output more than capital expenditure on ICT gadgets. The study recommended on the need to increase investments in information technology in order to increase productivity of banks.

### **3.0 Research design and Methodology**

This study is descriptive in nature has been conducted in Dar es Salaam because Dar es Salaam city which is the central business area, the headquarters of the developed commercial banking institutions are situated within the city therefore this helped in data collection and sampling. The study employed descriptive research design as it facilitated collection of information from various categories of bank managers i.e Customer relations manager who informed the study on how customers use technology to relate with the bank, Cash manager who informed the study on how cash flows using technology and the IT managers who informed the study on technical issues and challenges and allow them to state their perceptions on impact and challenges on IT adoption in the banking sector.

The universe of the study comprised managers and technical experts from IT departments in twelve selected banks in Dar es Salaam. It was necessary that the approached respondents should have adopted one or more ICT infrastructure in their banks.

The targeted population was fourty eight respondents; four managers were selected from each bank. Purposive sampling was done and this population was targeted because they made up two thirds of the banks in the city and were the people who provided the necessary data for this study. The whole population was sampled because it is minimal. These banks are: National Microfinance Bank, National Bank of Commerce, Postal Bank, Kenya Commercial Bank Tanzania Ltd, Exim, Akiba, Equity, Stanbic, Access, Standard Chartered, FNB and CBA. The survey was conducted using a well-structured questionnaire which was pre-tested by five respondents and consultation of IT experts especially in banking and academic to ensure reliability and validation. The research instrument comprised two sections. The first part comprised two questions concerning the demographic profile of the respondents which included education, work experience. The second part, section one consisted 13 questions which explored positive impacts of ICT adoption in banking sector, bankers' opinions on the need, what encouraged them to adopt ICT and section two which consisted of 10 questions on challenges facing ICT adoption. In this part, five-point Likert's scale was used in statements

related to perceived obstacles and in the other questions, responded were instructed to choose the appropriate ones.

Research devised questionnaire with both closed and open ended questions was administered such that they were filled and collected by the researcher. This method was useful to reduce the problem of non-response hence its justification for this study.

### 3.1 Data Analysis

The data collected was tabulated and analyzed using a statistical software package known as Statistical Package for Social Sciences (SPSS 17 Version). The researcher employed the use of mean and standard deviation. The responses of the subjects using five likert scale were entered into the computer using statistical package of social science research (SPSS).

## 4. Empirical findings and Discussion

Table 1

Interpretation

5	strongly agree	4.45-5.00
4	agree	3.35-4.44
3	undecided	2.45-3.44
2	disagree	1.45-2.44
1	strongly disagree	1.00-1.44

**Table 2.**

**Descriptive statistics**

	Mean	Std. Deviation	Scale
Do you think ICT has a major impact in banking?	4.333333	0.8164966	AGREE
it provides remote access	4.727273	0.452267	STRONGLY AGREE

it provides reliable access	4.424242	0.7084447	AGREE
convenient in providing secure access	4.515152	0.5657524	STRONGLY AGREE
customer centric	4.515152	0.5075192	STRONGLY AGREE
enhance customer access	4.515152	0.5075192	STRONGLY AGREE
enhance customer awareness	4.363636	0.6527912	AGREE
speed processing and transmission of data	4.606061	0.5556187	STRONGLY AGREE
cost effectiveness due to centralized management	4.30303	0.8095079	AGREE
it saves time	4.69697	0.5854938	STRONGLY AGREE
reduction of fraud levels and improved risk management	4.00000	1.00000	AGREE
easier marketing of banking products	4.424242	0.6139169	AGREE
enables wider networking, global links of banks	4.606061	0.4961977	STRONGLY AGREE
majority of customers shy away from ICT related banking services due to security reasons	3.545455	1.2270623	AGREE
customers still value personalized and responsive services from their banks	3.787879	0.9272802	AGREE
majority of customers are ignorant about ICT use especially online services	4.212121	0.9603898	AGREE
computer illiteracy is high	4.121212	0.9603898	AGREE
poor or lack of technological infrastructure in rural areas	4.484848	0.6185271	STRONGLY AGREE
inability to use technology	4.121212	0.9272802	AGREE
slowing down of systems	3.727273	1.0975179	AGREE
network communication error	3.545455	1.0923286	AGREE
shortage of money in ATM's during peak hours or weekends	3.242424	1.0905934	UNDECIDED
inadequate of IT specialists to manage the systems	3.212121	1.3171365	UNDECIDED

From the descriptive statistics table 4.4 above many of the respondents agreed that ICT has a major impact in banking with a mean of 4.3333 and standard deviation 0.8164. and others strongly agreed that information communication technologies like mobile banking products, internet banking products help customers and bankers have remote access of banking solutions with a mean of 4.7272 and smallest standard deviation of 0.4522

Many respondents strongly agreed that ICT related online banking products like digital financial services saves time in making transactions and can be accessed from any anywhere at any time with a mean of 4.6969 and standard deviation of 0.5854

From the table, respondents strongly opined that ICT has a positive impact where by it enables wider networking and links banks globally therefore enhancing smart banking solutions and services to the customers and also enabling wider networking, global links of banks with a mean of 4.6060 and a standard deviation of 0.4961

Majority of the respondents strongly agreed that poor or lack of technological infrastructure in rural areas affects ICT adoption with a mean of 4.4848 and a standard deviation of 0.9603.this means that banks and government need to invest more resources to enhance ICT infrastructure to increase productivity of banks.

Many respondents agreed that slowing down of ICT systems is a challenge in banking industry whereby it had a mean of 3.7272 and the highest standard deviation of 1.0975 meaning that the IT experts need to automate and monitor the ICT systems to enhance effectiveness in service delivery.

Bankers agreed that network communication error is another challenge in banking industry where by it had a mean of 4.5454 with a standard deviation of 1.0923. There is a need for bankers to employ network professionals who can reduce the network issues and also there is a need for training so that these network experts acquaint themselves to the dynamics in network engineering to curb and reduce network fraud and other challenges related to computer networks.

Another factor hindering the adoption of ICT technologies is ignorance by majority of the customers about ICT use especially online services and they don't own ICT gadgets which can enable them access online services whereby most of the respondents agreed with a mean of 4.2121 and standard deviation of 0.9603 this means that the government need to put in place incentives like tax reduction, make PC and other portable devices available and affordable to every Tanzanian.

From the table respondents were undecided about shortage of money in ATM's during peak hours or weekends and inadequate of IT specialists to manage the systems with a mean of 3.2424, 3.2121 and standard deviations of 1.0923 and 1.0905 respectively.

The research found out that indeed ICT has impacted the banking sector positively in providing digital financial services and bankers need to invest more in online banking products to enable their customers' bank at anytime and anywhere.

(Sonja 2010 on the effects of computerization on savings and credit cooperatives in Uganda),agreed with my findings that information communication technology has promoted microfinance sustainability ,reaching the poor people and Management information systems are essential in banking efficiency.

Due to evolvment in ICT technology, the research found out that more training is required to ensure human resource capacity, (Sonja 2010) agrees with my findings.

The research found out that customers need to be sensitized in the use of online banking products to enable Mobile banking products like online banking, internet banking and simu

banking easier and quicker, (amaoko ,2012) concurred with this findings. The government should play a key role in improving ICT infrastructure in Tanzania to curb online fraud which has cost many banks and customers lose millions of shillings

## **5.0 Conclusion**

Information Communication Technology is an evolving technology especially in the developing countries; the experts must be ready to upgrade their skills due to its dynamicity in nature and when banking institutions adopt these technologies, they need to put more effort on customer awareness and not on profitability organization with more investment, there is need for the government reduce the tax revenues on ICT gadgets

### **5.1 Recommendations**

Since the study is based in Dar es Salaam region only and not throughout the country limiting interpretation of managements' perception of technological adoption in the banking sector. Therefore it is recommended that research be carried out to cover the whole country, civic education on the ICT awareness also they must concentrate on customer awareness and since this is the initial stage of ICT adoption they should not concentrate on profitability issues. And there is a need for bankers to invest more resources in ICT technologies to help reduce fraud as well as provide more online banking products to reduce crowding in banks and improve banking solutions. The impact of adopting other individual technologies, profitability and performance issues should also be investigated to open up and clear the way for policy and business decisions.

## **Acknowledgement**

It's my great pleasure to thank my Almighty God for enabling me conduct this research successfully. I acknowledge the wonderful work of my lectures dr. Nelson Jagero, dr. Rugemalira Igangas and dr. Joash Migosi for their constructive criticism to enable me refine this paper. I wish also to thank Miss. Matrinda Anyango for assisting me in collecting data from Tanzanian banks and postgraduate school of Kampala international university Dar-es salaam campus for helping me in conducting this study.

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