

# Accessing the Impact of Information and Communication Technology (ICT) On the Performance of Banks in Ghana: A Case Study of Ghana Commercial Bank Limited

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**Abstract:** The study sought to examine the impact of Information and Communication Technology (ICT) on the performance of Ghanaian banks with a case study at Ghana Commercial Bank Limited. Information and Communication Technology (ICT) is at the centre of this global change curve. The application of ICT 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. The main objectives of the study were to assess the impact of ICT on the financial performance of Ghana Commercial Bank Limited (GCB), to find the contribution of ICT based products to customer satisfaction, to examine how ICT has helped reduce operational cost of GCB and to determine the effect of information technology on the liquidity of GCB. Qualitative data was collected using purposive sampling technique. SPSS was used in the descriptive analysis of one-hundred (100) administered interview guide and open-ended questionnaires. The study revealed that ICT Capital has accelerated growth in the bank. Also, ICT facilitated the absorption of high and medium skilled labour. This has a positive effect on the labour output at the bank. The study findings revealed that the bank's use of ICT also enabled the bank to offer a broad variety of services to customers, coordinate branch activities, and meet up with changes in government regulations and policies. The study observed by concluding that the bank's use of ICT has had an impact on the performance of the bank by way of increasing the bank profitability and also reducing the operational cost of the bank.

**Keywords:** Information; Performance; Financial; Administered; Operational

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## 1. INTRODUCTION

In recent times, Information and Communication Technology (ICT) has in particular brought a complete paradigm shift on bank's customer service delivery and financial performance in the banking industry. In a bid to catch up with global development, improve the quality of customer service delivery, reduce transaction cost and increase shareholders wealth, banks have invested heavily in ICT, and have widely adopted ICT software, hardware and networks for delivering a wide range of value added products and services. The ICT development has a significant effect on development of more flexible and user friendly banking services. Today, ICT has become the heart of banking sector, while banking industry is the heart of every robust economy. If it collapses so will the economy. It is absolutely evident from the current financial downturn in most of the European banks' crises, and in turn, ICT has created a new infrastructure for the world economy to become truly global and also provided the users of new technology a competitive advantage over their rivals. Services like electronic banking and ATMs have become the main technology driven revolution in conducting banking financial transactions. Banks have made huge investments in telecommunication and electronic systems, users have also been validated to accept

electronic banking system as useful and easy to use (Adesina and Ayo, 2010). Transactions worth billions of dollars can only take place in seconds in the electronic circuit throughout the globe by pressing a single button. The Ghana economy yearns for serious development. Irrespective of the fact that she is blessed with massive natural resources such as Gold, Oil, Cocoa and Timber, she remains one of the poorest countries in the world [1]. Banks today are looked upon as stated above as vehicle of change for a much needed economic growth and development as it behoves on banks to develop the most effective means of delivering effective, efficient and quality service that will help drive our much awaited economic success. These can be made possible if and only if ICT is properly put to use in the Ghanaian banking sector.

It is believed that the application of ICT in banking has the tendency to stimulate economic growth by bringing borrowers and lenders of financial resource together more efficiently than if they had to relate directly with one another. ICT has been acknowledged as the backbone of banks in the financial sector as it promotes and facilitates the performance (Financial and Operational) of banks in the country. These therefore call for a pre-requisite need to embrace information technology. It is in view of this that the research work attempts to examine the

impact of Information and Communication and Technology (ICT) on the performance (operational and financial) of banks in Ghana.

## 2. STATEMENT OF THE PROBLEM

Almost all banks worldwide are now using ICT at the various levels of operations. They are also offering ICT based products and services as part of the service delivery to customers. In general, ICT has been integrated into banking systems so as to enhance service delivery, reduce operational cost and improve efficiency in banks. This is expected to have appreciably positive effects on bank's productivity, general operations, market share and services delivery to customers.

Despite the use of information technology in banking sectors today with its numerous objectives, observation has shown that, not all the objectives have been realized and felt by banks and users. However customers have expressed their disgust through customer feedback forums, about the frequent ATM breakdowns, breakdown in network, the inability to access funds at other branches, referrals to branches due to breakdown, identity theft and high charges on visa transactions thereby disadvantaging shareholders, potential investors among other users. In light of this that the researcher deems it fit and appropriate to examine the impact of ICT on the performance (Financial and Operational) of Ghana Commercial Bank Limited.

## 3. OBJECTIVES OF THE STUDY

The general objective of this study was to examine the impact of Information and Communication and Technology (ICT) on the performance (Financial and Operational) of Ghanaian Banks.

Specifically this study aims;

1. To assess the impact of ICT on the financial performance of Ghana Commercial Bank Limited (GCB).
2. To find the contribution of ICT based products to customer satisfaction.
3. To examine how ICT has helped reduce operational cost of GCB.
4. To determine the effect of information technology on the liquidity of GCB.

## 4. SIGNIFICANCE OF THE STUDY

The study is significant because the adoption of ICT might be instrumental in helping improve the performance base of the banking industry. This work would be of great assistance to the management of the banks under study and other players in the Ghanaian banking industry to improve upon their ICT deployment to enhance performance.

The extent of utilizing information technology in banks will be measured by the volume of investment in equipment, and the volume of investment in the software and the use of Internet Banking, Phone Internet, the number of ATM, the use of Cyber Branch and Banking via SMS.

It would also contribute to existing literature by identifying the major barriers to the adoption of this innovation on banking operation in Ghana and suggest how to address them.

Finally, the study has served as a source of reference by building upon previous researches and as well as enriching the scientific knowledge on the subject. It will also serve as basis for future research relating to ICT by researchers and students

## 5. METHODOLOGY

In research there are two basic approaches, these are qualitative and quantitative. The quantitative research approach makes use of statistics and numbers which are mostly presented in figures while qualitative approach relies on describing an event with the use of words. A research approach chosen should be done according to the research questions in that particular situation since each approach has its own merit and demerit and how empirical data is collected and analysed [14]. Additionally, the degree of focus on either contemporary or historical event as well as the type of questions asked should be the main basis on which a research approach should be chosen. In conducting this study a comparison of both quantitative and qualitative research approaches was made and the quantitative research approach was used for the study.

### 5.2 Study Area

The research focused on Ghana Commercial Bank Limited. Ghana Commercial Bank established some decades ago has remained one of the greatest pillars in the banking sector of Ghana.

The bank has a large customer base and branches in the country. The services of the bank continue to be felt in every community in the country. With regard to its large deposit base, there is ever-growing pressure on its service delivery across the country. Thus the need to introduce ICT has become paramount. Ghana Commercial Bank Limited like every responsive organization is dynamic to changing trends in business transactions.

Apart from the traditional bank products such as savings, current accounts, fixed term deposits which were sourced through traditional practices such as going to the bank premises to transact business, technology has changed the practice of this bank significantly. Now Ghana Commercial Bank Limited has products or services such as the Ready Cash, MasterCard, Smart-Pay, Tansflow and SMS banking, and E-Loans, technologically-driven products or services which are affecting the way the bank carries out its business. Personal banking is now mobile, thanks to wireless technology and cellular phones, which were introduced into the system a couple of years ago. An individual can now access his or her account any time anywhere. Investors can now buy and sell stocks and other securities using their mobile phones and Personal Computers without even facing their bankers or brokers.

### 5.3 Research Design

This study made use of survey method on which data was collected once across the population through sampling. The study used descriptive research methods to assess the impact of Information, Communication and Technology (ICT) on the performance (Operational and Financial) of banks. The rationale behind the use of the descriptive research method helps the researcher to obtain first hand data from respondents in order to describe what exists. This technique gave a valuable insight into the question under study. The research used a case study approach and due to the descriptive nature of the study

qualitative technique was considered. The qualitative research was based on in-depth interview with respondents.

## 5.4 Population and Sampling

Staffs of Ghana Commercial Bank Limited were used as the population for this study. This research adopted sampling, which according to Newman (2004) is a set of cases a researcher selects from a larger pool and generalizes to the population. Using sampling in this way reduces cost and makes it possible to gather useful information quickly and where the samples are properly selected accurate result are guaranteed. Due to the focus of this study, 100 questionnaires were administered to 100 staffs from five different branches of the bank, a total of 20 respondents from each branch. The selected branches were Head office, Circle branch, Legon branch, Madina branch and Osu branch

It was impractical to collect data on the whole population, considering the size, as well as the time, available to the researcher, hence there was a need to select a sample to represent the whole population. Simple random sampling was used to select the branches at Accra Metropolis that the questionnaires were administered to, by assigning numbers and choosing without replacement. Purposive sampling technique was employed to select the staffs. This category was purposively selected because they are knowledgeable in the study setting and the subject area study. The sample size covered 33% of the target population of the study (thus, 100 out of 300). Thus 100 questionnaires were given out to help sample views of staffs of GCB

## 5.5 Data Collection Instruments

In order to gain access to contemporary data, a case study was carried out with the help of an interview guide. Thus, the interview guide was employed to collect primary data. One-on-one in depth-open-ended interview was conducted with all the study participants. This help in generating relevant qualitative data to shed more light on issues relating to the impact of information, communication and technology on the performance of Ghanaian Banks in Ghana already contained in the unstructured interview guide. This technique allowed the study participants to share more freely their experiences in the ICT performance and also offers the advantage of allowing the researcher to uncover previously unforeseen information. This method or instrument also allowed the researcher to probe for clarification and better understanding, especially on issues about paraphrasing, reflection and laddering to explore the issues in depth.

## 5.6 Data Management and Analysis

Data management is a challenging, integral, and vital part of qualitative research. Data handling and management has been identified as necessary for facilitating the coherence of a research project.

To achieve the research objective, information received through the interviews were first recorded, transcribed before they were typed out.

Besides, the researcher planned from the outset to sort, summarize, analyze, and store project data, including their process of working with the data through the iterative process.

The iterative progress of qualitative research means that data management and data analysis are integral to each other.

For better analysis, the data was arranged under themes which were developed from the literature and the prevailing issues from respondents taken into cognizance the study objectives.

## 5.7 Ethical Issues

The research contributed to the knowledge of ICT in an organisation and the impact on performance. It maintains utmost confidentiality about the respondents. The research ensured that all respondents were given a free will to participate and contribute voluntarily to the study. In addition, the researcher made sure that necessary research authorities are consulted and permission granted and due explanations given to the respondents before commencement of the study.

## 6. LITERATURE REVIEW

The literature explains that information and communication technology (ICT) related to banks and expanded to include both optimistic and pessimistic views as well as different opinions of changes and forces driving them. The literature shows that ICT generates many benefits and is a key to develop the concern employees in organizations (Venkatesh & Davis, 2000). There is a significant resistance to accepting and using computer resources in banks [3]. A lot of banks experience struggle and even more failure in moving ICT into practice even with spending billions of dollars (Hill et. al, 2002). The problems appear to be worst in developing countries [10]. The aim of every bank is by using information and communication technology is to improve employee performance, and this performance efficiency is only achieved when ICT is installed correctly. The slow ICT diffusion in banks could be from the poor infrastructure, sociopolitical, language barriers, cultural, economic risks and conflicts. Many banks put a hope by using ICT. And the challenges of ICT in these banks are by no means identical to the ones in the other institutions. And the challenges faced by banks in exploitation the full potential of ICT don't appear many differences from those of that are faced by the other institutions.

Today ICT is the best choice in all the banks to upgrade their performance and come to be competitive in the global market place [2]. The ICT based economies has simplified the most complex economies of the world and improved the productivity to the level where some banks have made its way out of the entire banking industry deficit and turned into a surplus in recent years [5]. The world economy now has moved from low-value basic industries to a fast paced high-value information based economy [12].

## 6.1 ICT Concepts and Definitions

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 [6]. It is a term that generally covers the harnessing of electronic technology for the information needs of a business at all levels. Communication Technology deals with the Physical devices and software that link various computer hardware components and transfer data from one physical location to another [8]. ICT products in use in the banking industry include Automated Teller Machine, Smart Cards, Telephone Banking, MICR, Electronic Funds

Transfer, Electronic Data Interchange, Electronic Home and Office Banking. It is not easy to find a definition that clearly describes the difference between IT and ICT. In short, the definitions of both IT and ICT talk about hardware, software and networks by which information is retrieved, recorded and displayed. The World Bank, which is working on providing help to the developing countries with funds and proficiency needed to exploiting ICT, defines IT and ICT as following:

Information technology *"Information Technology refers to the creation, storage and processing of data, including hardware (computer networks, servers, storage devices, and desktop computers), system software (operating systems, middleware, programming languages), and software applications"* World Bank (2002, p.3).

Another of World Bank's definitions says that: *"Information Technology is the use of technology, such as computing and software, in support of information processing"* World Bank (2005, p.6).

ICT consists of all technical means used to handle information and aid communication, including computer and network hardware as well as necessary software. In other words, ICT consists of IT as well as telephony, broadcast media, and all types of audio and video processing and transmission. The expression was first used in 1997 in a report by Dennis Stevenson to the UK government and promoted by the new National Curriculum documents for the UK in 2000. *ICT* is often used in the context of "ICT roadmap" to indicate the path that an organization will take with their ICT needs. The term *ICT* is now also used to refer to the merging (convergence) of telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the telephone network with the computer network system.

## 6.2 Commercial Application of ICT in the Banking Industry

The rapid advancement in ICT has had a profound effect on the banking industry and the wider financial sector over the last 2 decades. ICT is now a tool that facilitates the bank's organizational structures, business strategies and customer services [14]. ICT enables the development of sophisticated products, better market infrastructure, and implementation of reliable techniques for control of risks and helps the banks to reach geographically distant and diversified markets.

Today, the effective use of ICT is assisting bank to be more customer centred in their operations by building a solid foundation for customer relationship management. The system also helps to grow a range of products or services while mitigating fraud levels and improving risk management, reduce transaction and operational cost and to remain competitive. In sum, technology has changed the contours of the three major functions performed by banks: access to liquidity, transformation of assets and monitoring risks [7].

## 6.3 Forms of Information Technology Innovation (Electronic Delivery Channels)

Technological innovation has been identified to contribute to the distribution channels to banks. The electronic delivery channels are mostly referred to as electronic banking. Electronic banking allows customer to have easy access to their money and also control their financial business anywhere at

any time through automated teller machine (ATM), or direct deposit of pay-cheques into checking or savings accounts. Electronic banking also known as electronic funds transfer (EFT), uses computer and electronic technology as a substitutes for cheques and other paper transactions. Many banks and financial institutions use ATM or debit cards and personal identification number (PIN) for this purpose. The various electronic delivery channels are discussed below.

### 6.3.1 Automated Teller Machine (ATM)

Automated teller machine is an electronic terminal that let customer banks almost anytime. It's a computerized telecommunication device that provides the customer of a bank or financial institutions with access to financial transaction in public space without the need of bank teller. On modern, automated teller machines (ATM) the customers are identified by inserting a plastic ATM cards with magnetic stripes or a plastic smartcard with a chip, that contains a unique card number and some security information such as expiring date, or CVV. Security is provided by customer entering a personal identification number (PIN). To withdraw cash, make deposit and transfer funds between accounts, customers generally insert an ATM card and enter their personal Identification number (PIN).

Some financial institutions, banks and ATM owners charge a fee, particularly to customers who don't have accounts with them. ATM tells the customers the charge fee and its amount on the screen before transactions are completed. In Ghana the Trust Bank is the first bank to installed ATM in the country in 1995. Ghana Commercial Bank started its ATM offering in 2001 in collaborations with Agricultural Development Bank. Not long after, most of the major banks began their ATM networks at competitive position. Due to technological advancement in technology, ATM are able to provide a wide range of services such as cash withdrawal, change pin, account balance enquiry, funds transfer, print mini statement, request for bank statement and cheque book, make a cheque request, and pay utility bills.

### 6.3.2 Telephone Banking

Telephone Banking is a service provided by banks, which allows its customers to transact banking business over the telephone. Telephone Banking is a very convenient, fast and easy method of gaining access to your bank account at any time from any location, seven days a week, and twenty four hours a day using any touch tone telephone. Most telephone banking uses an automated phone answering system with phone keypad response or voice recognition capability. For security reasons, the customer must first authenticate through a numeric or verbal password or through a security question asked by live customer care personal. Telephone banking has numerous benefits for both banks and their customers [9]. On the part of the customers, it provides increased convenience, expanded access and significant time saving. With respect to the banks, the cost of delivering telephone-based service is cost saving than those of branch based services.

With telephone banking, customers cannot make cash withdrawals and deposit but other transactions like account balance information, electronic bill payment, funds transfers between a customer's accounts. Its saves customers from number of hours spent in the banking hall, making the banks to give good quality of services to their customers and making time to attend to other issues. Telephone banking offers retail

banking service to customers at their office/home as an alternative to going to the banking hall or to the ATM for transactions.

### 6.3.3 Internet Banking

The idea of internet banking was to give customers access to their personal account online anytime, anywhere. It's the perfect way for customers to do their banking transaction whether from home, the office or when travelling because the service is available 24 hours a day seven days a week. Internet banking gives the customers the opportunity to choose their own banking hours giving them greater control of their finances. It's secure, fast and easy to use. Customers have access to their latest balance, statement, view account details, customise, print, download statement and obtain history of all their account.

Internet banking gives customers the chance to check their balance and transaction details, transfer money to business partners, family and friends, pay utility bills, enquire of daily forex rate, request for cheque book and statement of account from the comfort of their home or offices without having to visit the bank. With internet banking customers need to log in with their log in ID and password in order to access their account. Banks like Barclays Ghana, Standard Chartered Bank Ghana, Ecobank Ghana, Prudential Bank and other banks have all launched their internet banking services.

### 6.3.4 Personal Computer Banking

A personal Computing Banking let customers handles many banks transactions via their personal computers, with the help of proprietary software installed on their computers. Once access is gained, the customer can perform a lot of retail banking services. The increasing awareness of the importance of computer literacy has resulted in increasing the use of personal computers. This certainly supports the growth of personal computer banking which virtually establishes a branch in the customer's home or office and offers 24 hours service, seven days a week.

### 6.3.4 Branch Networking

Networking of branches is the computerization and inter-connection of geographically scattered stand-alone bank branches, into one unified system in the form of Wide Area Network (WAN) or Enterprise Network (EN), for the creating and sharing of customer information and records. It offers quicker rate of inter-branch transactions as the consequence of distance and time are eliminated. Also, with the several networked branches serving the customer populace as one system, there is simulated division of labour among banks branches with its associated positive impact on productivity among the branches. With this system customers can transact banking business in any branch of their without travelling to their bank where they have their account.

## 6.4 ICT and Banks Competitiveness

Flexibility is considered to be a major source of competitiveness for banks compared to larger enterprises. The use of ICT could now on the one hand increase the competitiveness of banks as they enable the creation of more flexible links with trading partners because of faster and more reliable communication channels. On the other hand ICTs could help banks to increase their flexibility through a restructuring of the banks which will enable them to adapt quicker to changing conditions. Therefore the competitive advantage of banks could also decline. In general banks rely much more on formal information systems than smaller enterprises. To get the relevant information that is needed for a rational decision is costly especially as in banks usually there are major decision makers. External transaction costs are associated with the initiation, negotiation and enforcement of contracts. Especially the internet helps to screen the banks environment for relevant information and thereby get information about its customers that were previously out of reach [11]. However for the actual delivery of service and the transmission of payments also other infrastructure like transport and a reliable banking system has to be in place. However, for bigger banks that are growth oriented, belong to the formal sector etc. information becomes more important and therefore more advanced ICTs can be helpful for building business linkages. The survey banks in Botswana revealed the biggest information gap in market information pertaining to new customers and the need to expand into other markets. Information is also lacking about external finance and sources of skills and training. This lack of information was found to raise costs and reduce income. "ICTs can reduce time and money costs of business processes and can improve the certainty and quality of those processes." These benefits occur mainly in banks with bigger size (with annual turnover of a few tens of thousands of US\$) where the Internet can be used as a marketing tool. However for 90 % of the survey banks lack of finance and skills are the main constraints and they cannot afford to buy a computer or make efficient use of it in the short or even medium term [4].

## 7 ANALYSIS OF FINDINGS, RESULTS AND DISCUSSIONS

This section contains the analysis and report of the responses ascertained from the questionnaires distributed on the subject of "The impact of information, communication and technology on the performance of Ghanaian Banks". The analysis was done in five (5) parts; the first part contained the demographic characteristics of the respondents who formed the sample population of the project, the other four parts were on four objectives of the study. The study was organized under themes to coincide with the study objectives. The presentation was analyzed with the results obtained from the data gathered from interviews held with one-hundred (100) staff at all levels at Ghana Commercial Bank Limited.

### 7.1 Demographic Characteristics of the Respondents

The study first presents the distribution of the respondents. A total of one-hundred (100) questionnaires were distributed and

administered among the staffs of the bank. The study revealed that the majority of the respondents 55% were males and the rest 45% were females. The study age division results revealed that staff 18% was aged from 18-30 years. In addition, the study aged from 31-40 shows 45%, 41-50 depicts 25% with the remaining 7% and 5% were aged 51-60 years and 61 years above respectively.

The study revealed that the majority of the staff representing 60% of the staff had First Degrees. In addition, the Masters Degree represents 15% as their educational background and HND holders representing 10% of the staff while PhD and other professional certificate represented 15%. The findings revealed that majority of the staff have at least First Degrees, which indicated that the staffs are well educated and knowledgeable in the field of Information, Communication and Technology (ICT).

The study shows the number years the respondents has been working with Ghana Commercial Bank Limited. The study shows that 6% of the staff of the sampled population had worked for the institution for less than a year. In addition, 10% of the staff of the sampled population has worked for the institution between 1-5 years. Furthermore, 30% of the staff had worked with the bank for 5-10 years. Moreover, 40% of the sampled population had worked for the bank between 10-15 years and lastly, 15% of the sampled population are over 15 years and over. The above findings illustrates that majority of the employees are very experienced because they had worked at the Department for a very long time.

## **7.2 The Meaning of Information and Communication Technology (ICT)**

The study respondents were asked to explain the meaning of information and communication technology in their own views. The study findings indicated a total expression of one-hundred 100 respondents of which most of them shared a common view on the meaning of information and communication technology. The study shows that the majority of the respondents which indicated a percentage of 40% shared their views on ICT as an electronic means of capturing, processing, storing and communicating information. Secondly, the respondents shared other views on ICT as a form of tool for information collection storage and management to facilitate communication and decision making process with a maximum percentage of 30%. Moreover, the respondents did express the meaning of information and communication technology as the use of technology such as computer and software in support of information processing with a maximum percentage of 15%. Furthermore, the respondents shared their view on the meaning of ICT as automation of processes, controls and information production using computer telecommunication software with a percentage of 10%. Lastly, the respondents expressed their view on the meaning of ICT as the means by which technology helps in improving the efficiency and effectiveness of services offered to customers, improve business process as well as enhancing managerial decisions making and workgroup collaboration with a percentage of 5%. The study findings revealed that information and communication technology is expressed as the process of using technology in a diverse ways to help in facilitating the activities of the organisation through technological means in order to communicate information across the organisation.

## **7.3 Expression on the importance of Information and Communication Technology**

The study made way for the respondents to share and express their opinion on the importance of information and communication technology (ICT) to the performance of Ghana Commercial Bank Limited (GCB), the study revealed that 93% of the respondents were affirmative whereas 7% stated that they do not know the importance of information and communication technology to the performance of the bank under study. The study shows that information and communication technology was indicated by the respondents as important to the performance of the bank, even though 7% indicated that it does not.

## **7.4 The Importance of Information and Communication Technology (ICT) to the Performance of Ghana Commercial Bank Limited**

The study findings concerning the importance of information and communication technology to the performance of Ghana Commercial Bank Limited revealed that ICT helps to increase productivity with a percentage of 35%. This is followed by simplifying and making work easier at the bank indicated by the respondents as one of the importance of ICT to the performance of the organisation with a percentage of 30%. The next of importance was the enhancement in product quantity, quality and speed of work was indicated by the respondents with a percentage of 20%. Lastly, the least of the importance of information and communication and technology was to facilitate the acquisition of realistic plans in the organisation with a maximum percentage of 15%. The study findings revealed that ICT has been a great importance to the performance of Ghana Commercial Bank Limited because through the use of ICT, productivity of the bank has been improved since its facilitate and make the banking activities very easy and simple to operate.

## **7.5 Expression from respondents concerning impact of ICT on the financial performance of the Bank**

The study findings concerning the impact of information and communication technology on the financial performance of the bank indicated by the respondents shows that more than two-third of the sample population representing 97% indicated that information and communication technology has an impact on the financial performance of the Ghana Commercial Bank Limited, but the remaining 3% indicated that the introduction of information and communication technology does not have any impact on the financial performance of the Ghana Commercial Bank Limited. The study revealed that majority of the respondents expressed that ICT has an impact on the financial performance of the bank and this implies that ICT has been of great benefit to the staffs and the bank as a whole through their job activities at the bank.

## **7.6 The Impact of Information and Communication Technology (ICT) on the Financial Performance of Ghana Commercial Bank Limited**

The study findings concerning the impact of information and communication technology on the financial performance of Ghana Commercial Bank Limited of which most of the respondents shared a common view on the subject. The study revealed that the majority of the respondents indicated an increase in productivity representing 30%. This next of ICT impact on financial performance was innovation dynamics with a maximum percentage of 27%. This is followed by increases in market structure with an average percentage of 24% indicated by the respondents. Furthermore, supply chain was one of the impact of ICT on bank performance were shared by the respondents with a total percentage of 10%. Lastly, the respondents shared opinion on increases in fraudulent activities as one of views the respondents indicated as an impact of ICT on bank performance.

The study findings revealed that the use of information and communication technology (ICT) has had an impact on the financial performance of the Ghana Commercial Bank Limited (GCB) by way of increasing productivity and this has had an effect on labor productivity and total factor productivity of GCB. The study shows that the banking industry of GCB has been enjoying the largest productivity growth effect of ICT by way through which ICT has helped the cahiers of the bank to be more productive in their duties and banking operations which turns to speed and brings efficiency in the job, however, increasing the turn-around time at the banking the hall which increases savings, hence profitability increases. The study shows that the bank used of computers and peripherals simplifies the task of getting customers' data and counting money to effect transaction. This enables a single cashier to serve thousands of customers in a day which would have cost the bank enormous staff strength and large building operating cost.

In addition, the study revealed that the bank used of ICT has had a positive impact on the financial performance of Ghana Commercial Bank Limited through technological innovative products and process such as SMS alert, ATM, mobile banking and electronic banking. The study shows that the bank used of technological change had a massive diffusion of ICT innovation strategies at the bank which helps in easy mobilization and transfer of funds thereby increasing the deposit mobilization hence, improving the financial performance of the GCB. This implies that the bank did frequently introduced products or production processes based on a new technology which did drive the bank into new market in the banking industry. The bank ICT innovation has helped in to reduce the cost of banking which made the process of transaction easier and more convenient. The study shows that through the used of ICT, the bank made its customers to enjoy the fastest information updates about the bank and their daily transactions through SMS and email alerts which enhance customer's loyalty and confidence and also the study shows that the bank encouraged the use of other ICT media such as the internet and POS which enhances cashless banking which proved productive in the sales of the bank hence, improving the financial performance of the bank.

Moreover, the study shows the extent to which Information Technology (IT) had improved supply chain agility as measured by the ability to sense and respond to market

changes, and the impact the use of (IT) through supply chain agility has had on the bank performance. The study revealed that the bank used of Information Technology (IT) increases the supply chains ability to sense market changes by improving information quality in terms of adequacy, accuracy, accessibility, and timeliness. The study also shows that IT has increased the supply chains ability to respond to market changes by developing and executing a coordinated plan with the supply chain in terms of cost, quality, and timeliness. This implies that the supply chain agility has improved the bank performance in terms of sales, market share, profitability, speed to market, and customer satisfaction.

Lastly, the study finding shows that the use of Information and Communication Technology (ICT) by the bank paved way for fraudulent activities at the bank. The study revealed information technology made it possible for fraudsters to hack into the system of the bank by way of having access to the information of the bank clients and customers of which these fraudsters managed to freeze and defaulted some of the customer's accounts. This implies that instead of the use of the information and communication technology having a positive impact on the bank financial performance, it slightly had a negative effect on the bank performance through the activities of fraudsters taking advantage of the weakness in the system.

## **7.7 The contribution of ICT based products to customer satisfaction**

The study showed the contribution of information and communication technology based products to customer satisfaction. The study revealed that 45% of the respondents indicated branch network as one of the ICT based product. Secondly, 25% of the respondents indicated the use of Automated Teller Machine (ATM) as part of the ICT based product used by the bank to satisfy its customers. Moreover, 18% of the respondents indicated electronic banking as part of ICT based product offered by the bank to its clients and lastly, 12% of the respondents indicated that SMS Alert as part of the ICT products used by the bank.

The study findings shows that the management and the staff of Ghana Commercial Bank Limited had made it possible for the customers of the bank to experience the quality of service through ICT based products offered to its numerous customers across the country of which the products has been a key strategic component to the bank customer satisfaction.

The study finding shows that the bank branch network has been one of the powerful tools used by the bank through the information based technology. This implies that the customers of bank under study still finds it useful to visit their bank branches regularly every month to transact some banking business such as detailed bank statement requests, loan application, foreign funds transfer, deposits etc. This signified the importance of the customer's satisfaction that they have been experiencing by way of having access to their funds anywhere at the branch and it saved them time and cost visiting their original branches.

The study findings revealed that the bank innovative used of Automated Teller Machine (ATM) has helped in the contribution of reducing the bank customers frequent visits to the banking hall and also with the fact that the study shows that ATM reduced the time involved in the bank transactions, reduced long queues in the banking hall and enhanced access to funds anywhere the ATMs were located.

The study shows that the importance of ICT based products service delivery and its impact on improving customer

satisfaction and retention of customers had improved the bank sales and market share, and also improved the corporate image of the bank. The study revealed that ICT based products has an appreciable positive effects on customer service. This affects the growth of the bank positively because customers can now collect money from any branch of the bank. Also, customers do not need to move about with large sums of money, and customers are being attended to within a short period of time. New technologies have created unparalleled wired economy and that the transfer of money from point 'A' to point 'B' has resulted in turning the actual money into bits and bytes through satellite transponders, fibre optic cables or regular telephone [13].

### **7.8 Contribution of ICT to the reduction of operational cost of the bank**

According to the respondent's opinion concerning Information and Communication Technology (ICT) and contribution to the reduction of operational cost at Ghana Commercial Bank Limited. The study shows that more than half representing 87% indicated that ICT had contributed to the reduction of operational cost of the bank, but the remaining 13% pointed out that the reduction of operational cost at the bank does not necessary involves the bank application of information and communication technology.

### **7.9 Expression from respondents concerning the effect of ICT on the liquidity of the Bank**

According to the respondent's opinion concerning the effect of Information and Communication Technology (ICT) on the liquidity of Ghana Commercial Bank Limited. The study findings indicated that more than half representing 96% shared an opinion that ICT has an effect on the liquidity of Ghana Commercial Bank Limited, but the remaining 4% indicated that Information and Communication Technology (ICT) does not have any effect on the liquidity of the bank.

### **7.10 Expression on satisfaction of the respondent's concerning the impact of ICT on the performance of Ghana Commercial Bank Limited**

The study sought the expressions concerning the satisfaction of the respondents concerning the impact of Information and Communication Technology (ICT) on the performance of Ghana Commercial Bank limited. The study finding shows that the respondents shared a common view that the Information and Communication Technology (ICT) has had positive impact on the performance of the bank with majority of the respondents thus, 82% were fully satisfied with the impact of ICT on the performance of the bank and 18% were dissatisfied.

## **8. SUMMARY OF THE MAIN FINDINGS**

The study findings revealed that the use of information and communication technology (ICT) has had an impact on the financial performance of the Ghana Commercial Bank Limited (GCB) by way of increasing productivity and this has had an effect on labour productivity and total factor productivity of GCB.

The study revealed that the bank used of ICT has had a positive impact on the financial performance of Ghana Commercial Bank Limited through technological innovative products and process such as SMS alert, ATM, mobile banking and electronic banking.

The study shows that the bank used of technological change had a massive diffusion of ICT innovation strategies at the bank which helps in easy mobilization and transfer of funds thereby increasing the deposit mobilization hence, improving the financial performance of the GCB. This implies that the bank did frequently introduced products or production processes based on a new technology which did drive the bank into new market in the banking industry.

The study revealed that information technology made it possible for fraudsters to hack into the system of the bank by way of having access to the information of the bank clients and customers of which these fraudsters managed to freeze and defaulted some of the customer's accounts. This implies that instead of the use of the information and communication technology having a positive impact on the bank financial performance, it slightly had a negative effect on the bank performance through the activities of fraudsters taking advantage of the weakness in the system.

The study finding shows that the bank branch network has been one of the powerful tools used by the bank through the information based technology. This implies that the customers of bank under study still finds it useful to visit their bank branches regularly every month to transact some banking business such as detailed bank statement requests, loan application, foreign funds transfer, deposits etc. This signified the importance of the customer's satisfaction that they have been experiencing by way of having access to their funds anywhere at the branch.

The study findings revealed that the bank innovative used of Automated Teller Machine (ATM) has helped in the contribution of reducing the bank customers frequent visits to the banking hall and also with the fact that the study shows that ATM reduced the time involved in the bank transactions, reduced long queues in the banking hall and enhanced access to funds anywhere the ATMs were located.

The study revealed that ICT based products has an appreciable positive effects on customer service. This affects the growth of the bank positively because customers can now collect money from any branch of the bank. Also, customers do not need to move about with large sums of money, and customers are being attended to within a short period of time. The study shows that the bank ICT based products had hold the promise of a new commercial revolution by offering an inexpensive and direct way for its customers to exchange information and to sell or buy products and services. This revolution made it possible for the bank to create a market place which has turned to set in motion a revolution in the banking sector for the provision of a payment system that is compatible with the demands of the electronic marketplace.

The study finding shows that Information and Communication Technology (ICT) helped to provide supportive role for the human resources (staff) activities at the bank. This implies that the bank operations and activities concerning providing services to its numerous customer are been done through the human resources at the bank, hence, through ICT at the bank had made Ghana Commercial Bank Limited to reduce the number of staffs who are responsible for the daily operations of the bank thus cutting the wage bills of the bank in terms of the cost involved in paying the huge staff in undertaking the operations at the bank.

The study findings also shows that the bank made use of Information and Communication Technology of which this helped the bank to save time in their operations at the bank. This implies that bank activities were mostly facilitated by the use of ICT machines which made the bank to provide its services to its customers on time made it faster. This means that the budget that was allocated to the running of the operational activities of the bank was cut off through the bank technological use of ICT at the bank.

The study findings show that the bank made use of Information and Communication Technology (ICT) contributed to the reduction of operational cost of Ghana Commercial Bank Limited by way of the bank using ICT to fasten the decision making process at the bank. This implies that the bank made use of ICT which did support the decision making process at the bank. The operational cost involved in Ghana Commercial Bank Limited is very huge due to its largest coverage across the country; hence, the bank used ICT to help in making decision through video conferencing, CCTV cameras and telephones.

The study findings concerning the effects of Information and Communication Technology (ICT) helped to improve the bank monetary reserve. This implied that information technology was used as a medium to channel and assisted in mobilizing deposit from the bank numerous customers and also shows that the bank made use of ICT as a form of technology which did help the bank turnaround time at the banking hall because of the kind of technology that were used by the banking staff in providing better services to the customers. This encouraged the customers to save much of their income with the bank hence, increasing the bank profitability and its liquidity at large.

The study finding shows that the bank used Information and Communication Technology (ICT) helped in improving the bank fixed assets at the bank. This means that the bank made use of information technology in its products and services to its customers which made the bank to have access to modern fixed assets in their disposal for providing and assisting the bank in their services.

The study findings show that the bank technological advancement through the use of Information and Communication Technology (ICT) helped in protecting the bank liquidity either in the form of money or property. The study revealed that the bank used information technology to help in protecting the banking hall through the use of modern CCTV cameras in detecting fraud. The study also shows that the bank used modern technology in encryption their confidential information on the bank data from allowing fraudsters from hacking into the banking system and defrauding the bank.

## 9. CONCLUSION

In conclusion, the study observed by drawing its conclusion from the findings of which the results of the research indicate that investment on ICT systems has become a key element in the performance at Ghana Commercial Bank Limited. The study revealed that ICT-Capital has accelerated growth in the bank. Also, ICT facilitates the absorption of high and medium skilled labor. This has a positive effect on the labor output at the bank. The study findings revealed that the bank used ICT also enabled Ghana Commercial Bank Limited to offer a broad variety of services to customers, coordinate branch activities, meet up with changes in government regulations and policies as well as adjust to market demands and competition. The

study observed by concluding that the bank used Information and Communication Technology (ICT) has had an impact on the performance of the bank by way of increasing the bank profitability and also reducing the operational cost of the bank. The results suggest that improving the service quality through ICT experience had improved the overall customer perception of the quality of service provided by the bank. The study observed that the customers of the bank appear generally satisfied with the technological aspects of the bank. In other words, the bank customers are now familiar with the basic service provided by ATMs and bank websites through which the customer's satisfaction for these ICT devices has been great of benefit to the bank. They revealed that the bank has taken their ICT to the next level in order to stay one step ahead of the competition.

## 10. RECOMMENDATIONS

The study recommends that the bank should research and have better feasibility studies on their customers to know the kind of information technology that will be suitable for the bank and its customers to help in the bank financial performance.

The study also recommends that the bank should involve itself more in the use of electronic banking rather than the traditional way of customers always having to visit the banking hall of which it will fasten and will encourage deposit mobilization because of the convenience and easy way of assessing transactions.

The study recommends that the bank's management should be well advised to conduct periodic marketing research studies on their own customers, to include developing a database containing both the demographic and psychographic profiles of its customer base. Such a database would then allow the management to make a more informed decision about the level of technological services needed at any one time in relation to the level of personal staffing to ensure adequate service delivery.

The study recommends that the bank should concentrate their efforts on those areas customers feel are most important (i.e. accuracy, timeliness, and convenience). These are areas in which technology (capital expense) has been well utilized to replace more costly labour resources to accomplish essentially those services that the customer is accustomed to.

## 11. FURTHER STUDIES

There are a number of research opportunities to explore in the future based on this study. The following recommendations are therefore made for future research.

- Future research should look at Information and Communication Technology (ICT) and its contribution to the development of the country at large.
- Future research should also take into consideration a larger sample size upon which better conclusion can be drawn from them.
- Future research should aim to improve impact of ICT, by examining whether ICT usage or adoption varies in importance across the banking sector in the country.

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