

# A Comparative Analysis of the Application of Information Technology by Foreign and Local Banks in Ghana

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## Abstract

To consider, the banking sector is increasingly being fraught with competition, and banks need to hedge against excessive competition to make growth. The effective use of information technology is one way of doing this. The study was a survey, a quantitative and a non-experimental research. A sample size of 72 IT bankers was used. Frequencies, percentages, Kendal's correlational test and the chi-square test were used in data analysis. It was found that extent of use of Information Technology is higher for foreign banks. The use of information technology positively relates to customer retention, customer satisfaction, customer patronage and profitability, and this means that the use of IT in the banking sector promotes growth. The capacity of investment on IT by foreign banks is much higher than that of local banks.

**Key words:** Information technology, local banks, foreign banks, customer satisfaction, customer retention, customer patronage, growth

## 1.1 Introduction

Information Technology (IT) is a credible tool in the development of the business sector of society. As a renewable field of human intelligence, the IT sector has been useful in managing change and development in businesses. Information technology (IT) is largely considered to "encompass the use of computers and telecommunications equipment to store, retrieve, transmit and manipulate data" (Daintiff, 2009)[2]. On the other hand Management Information System (MIS) is related to management information technology (MIT), which is an aspect of MIS (O'Brien, 1999)[6], which is applied by banks at the management level. Information technology deals with the tools, processes and people needed to grow banking business through effective exchange and dissemination of business-related information, products and services (Hsu and Pant, 1995)[8]. Information technology proficiency of employees deals more about the ability of people to use computer, telephones and other devices and their related programs to communicate and react to customers within the banking system.

The banking sector has over the years demanded a large-scale use of information technology, and this has brought about a paradigm progress in the sector (Jordan and Katz, 1999)[3]. The use of Automated Teller Machines, mobile phones and other electronic devices for easy banking, and transactions like online banking, instant access to retirement accounts, electronic bank applications and electronic wire transfers, are all rooted in information technology practices (Vitez, 2012)[10]. Furthermore, information technology has been savoured by banks to communicate and operate internally through hand-held devices, computers and their related IT-based programs (Jordan and Katz, 1999; Vitez, 2012)[10]. Hence, the application of information technology in the banking sector cannot be underestimated. Yet, the relative scope of application of IT in local and foreign banks is not known in Ghana, despite the assertion that foreign banks have better quality service relative to local banks, based on the commitment of foreign banks to invest on information technology application (Asante, 2012)[1]. The fact that not much is known about the use of IT by local and foreign banks in Ghana is attributable to a lack of empirical evidences, which is in turn based on a lack of suitable research.

## 1.2 Statement of the Problem

Increasingly, information technology is being advanced in all sectors of business and society, and the situation is much more awesome in the sector of banking (Vitez, 2012; Oshikoya and Hussain, n.d)[10]. The use of Automated Teller Machines (ATMs), mobile phones and other electronic devices for easy banking, and transactions like online banking, instant access to retirement accounts, electronic bank applications and electronic wire transfers, are all rooted in information technology practices (Vitez, 2012)[10]. Though information technology usage proliferates all over the world, not much is known about how local and foreign banks in a local economy use IT towards growth. This is owing to the fact that there are no empirically proven evidences in this respect, and the situation is caused by a lack of suitable research work. Asante (2012)[1] said that foreign banks in Ghana are more committed to investing on information technology and this accounts for the reason why they employ better IT-based techniques of banking. Nonetheless, this assertion has no empirical

backing. Other researches that have been done on the subject cannot be applied in Ghana due to the fact that they were undertaken outside Ghana. In a nutshell, no research has been able to exactly identify the application of IT by foreign and local banks in the banking sector of Ghana.

### 1.3 Objective of the Study

The objective of this research was to identify how Information Technology is used by banks in Ghana. In addition, the purpose of the study was to identify the extent of use of IT by local and foreign banks and to measure how the use of information technology impacts growth of banks.

### 1.4 Hypotheses

**H<sub>01</sub>**: The extent of use of Information Technology is the same for both local and foreign banks.

**H<sub>02</sub>**: The extent of use of Information Technology does not impact on growth of banks in terms of customer retention, customer satisfaction, customer patronage and profitability.

**H<sub>03</sub>**: A bank's investment capacity does not influence its extent of use of Information Technology.

### 1.5 Literature Review

#### 1.5.1 Extent of use of Information Technology of Local and Foreign Banks

Effective use of information technology is a requisite for growth, as this is the age of information technology (Jordan and Katz, 1999)[3]. Moreover, the complexity of banking is made easy with effective use of information technology. Aside these facts, Ghana's banking industry is characterised of local and feign banks and there is the general perception that banking services of foreign banks are more improved with information technology (Asante, 2012)[1]. Jordan and Katz (1999)[3] have also stressed that foreign banks would often have better quality in terms of service delivery as a result of an application of foreign banking standards in the local economy and the fact that many foreign banks have the capability and commitment to invest in IT banking. Vitez (2012)[10] unfolded four areas where banks base their information technology investment on: online banking, access to retirement account, electronic banking and electronic wire transfer. Foreign banks are generally able to provide IT needs in all these four sectors, at least better than local banks (Vitez, 2012)[10]. The local banks which are not financially strong often invest in basic IT needs such as resources of management information systems, ATMs and mobile and internet banking. It can therefore be said that foreign banks, based on the inputs of Vitez (2012)[10] and Jordan and Katz (1999)[3], have a higher scope or extent of use of IT than local banks.

#### 1.5.2 Impact of Information Technology on Growth of Banks

Between 1986 and 1995, the computing power of the average PC (including other IT-based devices) increased eleven-fold while the price declined (Jordan and Katz, 1999)[3]. For commercial banking firms, advances in IT have resulted in dramatic productivity gains. One early example was the introduction of the automatic teller machine (ATM), which first appeared in the United States in 1968 (Jordan and Katz, 1999)[3]. Most certainly, the introduction of ATMs made the distribution of some banking services more "efficient."

It is surprising that such productivity increases do not necessarily translate into overall cost reductions for banks, as advances in IT can do more than simply automate a banking activity (Jordan and Katz, 1999)[3]. They also have "indirect" effects, both on consumer preferences and on the structure and competition of the banking industry. These indirect effects can alter banks' costs and revenues in a number of complicated and contradictory ways, with the end result on profits uncertain. In the case of ATMs, as customers become comfortable with the new technology, they will begin demanding greater convenience and higher-quality products. Customers will make more frequent withdrawals which, in turn, will force banks to process an increasing number of transactions — potentially at significant cost. Soon customers will decide that access to a single ATM at the bank branch will not be enough; they will want broader ATM accessibility. Banks will respond either by investing in expensive ATM networks or by allowing their customers to have access to accounts via networks built by others. Customers would also like to access account statements via mobile phones, internet or any suitable media, and the bank is obligated to respond to this need. All these commitments made by the bank to meet customer demands will forester customer satisfaction, which will in turn bring about customer loyalty and retention.

Increased customer satisfaction increases customer loyalty; hence the bank is able to retain customers and boost productivity (Jordan and Katz, 1999)[3].

### **1.5.3 Bank's Investment in Information Technology**

One factor that differentiates between the extent of use of information technology by local and foreign banks is banks' financial strength, which influences the level of investment banks make on information technology. There has been a general perception that foreign banks have higher financial strengths than local banks in Ghana, and this is said to influence the situation where foreign banks invest much more better in logistics and infrastructure, particularly information technology, than local banks (Leckson-Leckey, 2011)[5]. In the areas of information technology, foreign banks tend to invest higher on internet banking, ATMs, mobile banking, management information systems and other IT-related programs (Keramati, 2009; Stiroh, 2001)[9]. This is generally true, but there are a few local banks that have a wide and fortified base of finance and they tend to also give much attention to investing on IT (Leckson-Leckey, 2011)[5]. Based on factors beyond disclosure in this paper, increasing investment on information technology in the banking sector increases a positive impact of IT on business growth (Keramati, 2009)[4]. As a result, it is characteristic of banks to make a comparatively high budget towards the application of IT.

## **1.6 Methodology**

### **1.6.1 Research Design**

The study was carried out as a survey of banks in Accra, where all the 27 active banks of Ghana were involved in the study. The researcher also undertook the study as a quantitative research. The study could also be said to be non-experimental research design. The quantitative research paradigm was employed due to the fact that hypothesis testing was characteristic of the study, and descriptive statistics were also used in data analysis.

### **1.6.2 Population, Sample and Sampling Techniques**

The study involved IT bankers of all banks in Ghana. Convenient sampling was used with the stratified sampling technique. Stratified sampling was used to designate the sample into "local banks" and "foreign banks". For each category, a sample of 36 respondents was used, making an overall sample size of 72. As a matter of convenience, only respondents which had knowledge about the use of IT in their banks were chosen.

### **1.6.3 Tools of Data Analysis**

Frequencies, percentages and the chi-square test were used in data analysis. The chi-square and Kendall's correlational test were employed in the three hypotheses stated. The researcher's choice of these tools is attributed to the fact that nominal and ordinal scale data were involved in analysis. Generally, such data are analysed using non-parametric statistical tools.

## **1.7 Results of the Study**

Banks were found to use information technology in various areas of banking, and this includes online banking, mobile banking, ATM banking, internet banking, e-wire transfer, electronic account application and management information systems. Table 1 below gives the proportions of bankers who indicated the above-listed IT banking areas.

**Table 1: Areas of Information Technology Banking**

Area of Banking	Frequency	Percentage
Online banking	8	11%
Mobile banking	6	8%
ATM banking	21	28%
Internet Banking	12	16%
E-wire transfer	8	11%
e-application	7	9%
MIS	14	18%
Total	76	100%

About 8% of bankers, the least proportion of bankers indicated mobile banking. About 11% of bankers indicated online banking and e-wire transfer. About 9% of respondents indicated e-application (electronic account application). About 16% of bankers revealed internet banking, while about 18% of them disclosed management information systems (MIS). A majority of bankers revealed ATM banking.

**Table 2: Summary – Chi-Square Tests**

Hypotheses	Level of significance	X <sup>2</sup>	X <sup>2</sup> (crit)	Decision
The extent of use of Information Technology is the same for both local and foreign banks.	0.05	20.72	5.99	Not Confirmed
Capacity of investment on IT by bank is the same for local and foreign banks	0.05	25.33	5.99	Not Confirmed

Table 2 gives summary of chi-square tests carried out on two research hypotheses. Each hypothesis in the table are not confirmed or accepted since  $X^2 > X^2(\text{crit})$  in each case. It can therefore be said that extent of use of IT by foreign banks is higher than that of local banks. Also, capacity of investment of foreign banks on IT is higher than that of local banks.

**Table 3: Summary – Kendal's Correlational Tests**

Hypothesis	$\alpha$	Kendal's correlation	Decision
No relationship between extent of IT use and customer satisfaction	0.05	0.5	Not Confirmed
No relationship between extent of IT use and retention	0.05	0.43	Not Confirmed
No relationship between extent of IT use and customer patronage	0.05	0.82	Not Confirmed
No relationship between extent of IT use and profitability	0.05	0.23	Not Confirmed
A bank's investment capacity does not influence its extent of use of Information Technology	0.05	0.66	Not Confirmed

Table 3 shows summary of Kendal's correlational test. All the hypotheses in the table are not confirmed. Considering the values of correlation obtained, it can be said that extent of use of IT by banks is positively related to customer satisfaction, customer retention, customer patronage, profitability and investment capacity. This means that increased extent of use of IT by banks increases customer satisfaction, customer retention, customer patronage, profitability and scale of investment. Correlation between extent of use of IT and customer

satisfaction, customer patronage and investment capacity is positively strong, while correlation between extent of use of IT and customer retention and profitability is positively weak.

## 1.8 Conclusions and Recommendations

Banks use information technology in various areas of banking, and this include online banking, mobile banking, ATM banking, internet banking, e-wire transfer, electronic account application and management information systems. Extent of use of IT by foreign banks is higher than that of local banks. Thus, foreign banks use IT at a greater extent than local banks. Also, capacity of investment of foreign banks on IT is higher than that of local banks. Extent of use of IT by banks is positively related to customer satisfaction, customer retention, customer patronage, profitability and investment capacity. This means that increased extent of use of IT by banks increases customer satisfaction, customer retention, customer patronage, profitability and scale of investment. Correlation between extent of use of IT and customer satisfaction, customer patronage and investment capacity is positively strong, while correlation between extent of use of IT and customer retention and profitability is positively weak. This indicates that there is a positive linear correlation between extent of use of IT and growth of banks.

Banks are therefore encouraged to make more but strategic IT-based investment, as this improves banking towards improvement in service delivery and higher productivity. This is particularly noteworthy to the local banks, which use IT much lesser in the sector. Indirectly, improved use of information technology by banks would positively impact on customer satisfaction, retention and patronage.

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