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An Evaluation of the Effectiveness of the MCA Rural Banks Computerization and Interconnectivity Project Implementation: A Comparative Case Study of Amanano and Odotobri Rural Bank Limited

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Abstract
The aim of this research project is to addresses the effectiveness of the MCA Rural Banks Computerization and Interconnectivity project to the rural banks. This study will provide an exploratory look at the challenges surrounding the computerization project implementation and how the system administrators, Managers and staff of Amanano and Odotobri Rural Bank in particular perceive them.Collation of the relevant data is followed by a discussion of the challenges emanating from the computerization project that impedes on the effectiveness of the process. After analyzing the relevant information, it became apparent that there are three primary results, which are shown here. The first is that, strategic planning for the computerization project is fundamental and key to the ultimate effectiveness of MCA computerization project. Planning with regard to the acquisition of equipment for the computerization project has proven to be a difficult accomplishment regardless of the type of rural bank. Secondly, training and sensitization of the staff on information technology has proven to be a major factor in effective implementation of the project. This trend speaks directly to the lack of training and the difficulties rural banks face during the computerization of their banks. Finally, it is shown that the expertise level of staff with regard to Information Technology has proven to be a contributing factor to the effectiveness of the computerization implementation process.
Keywords: Information and Communication Technology, IT Planning, Millennium Challenge Account (MCA), IT Procurement, IT implementation, RCB, ARP Apex Bank

1.0 Introduction

Since the establishment of Rural Banks, their operations have been largely manual. The difficulty and complexities associated with the manual operations are well known. These difficulties have been translated into inaccuracies in record keeping, late preparation and submission of prudential returns to the Central Bank of Ghana and ARB Apex Bank, weak internal control systems and poor quality of service delivery to customers.

In view of this the Government of Ghana under the auspices of Millennium Challenge Account (MCA) Ghana Program sponsored the US$25 Million Ghana Rural Bank Computerization and Connectivity Project that commenced in 2008 and was completed in 2012. Mantey, (2011) contended strongly that it is becoming increasingly obvious that if Rural Banks are to survive the increasing competition in the financial industry, then the manual system of operation should give way to automation.

The main objective of The Rural Bank Computerization Project is to provide *"Information Communication Technologies (ICT) to Rural Banks in Ghana"* to improve their service delivery and support local enterprise, the bulk of which is in Agriculture. It is the major MCA Ghana Project that covers all the ten (10) administrative regions of Ghana.

The application of ICT concepts, policies, techniques, and implementation strategies to rural banking product and services has basically become a prime concern and importance to all Rural Banks and indeed a requirement for competitiveness in our financial institutions both internally and around the globe. Information and Communication Technology (ICT) directly helps Managers in their decision making in the rural banking sector. These have continued to transform how banking operations and corporate interaction are been organized in this country and the diversity of innovative technologies available to augment the speed and quality of rural banking service delivery.

The current business environment has become very dynamic and has undergone drastic changes due to the innovations in technology, increase in demands and awareness from clients of the rural banks.

Corporate organizations, especially the Rural Banking sector currently executes their operations in a competitive and complex environment caused by these transformative conditions and highly volatile economic environment. Computerization of their systems has become the engine of their operations. Laudon and Laudon,(1991) did argued that CEO's and Managers within the financial sector cannot in anyway deny the importance of Information and Communication Technology on their operations as it plays a very crucial role in contemporary business entities. They are of the notion that the entire cash flow of most successful financial institutions in the world are based on the information and communication technology systems they employ in their operations.

Harold and Jeff (1995) were of the opinion that, financial institutions should modify their manual and traditional mode of operation in order to remain viable now and in the future as. They further argued that the most significant challenges in the rural banking sector today is the wide-spread failure on the part of Board of Directors and Top Management in Rural Banks to grasp the importance of Information and Communication Technology and thereby incorporating it into their strategic business plans as the system requires them to do.

Woherem (2000) also contended vehemently that only Rural Banks that change their entire payment and delivery systems and employ Information and Communication Technology to their mode of operations will be capable of surviving and also prosper in the new millennium. He therefore advices Rural Banks that, in order for them to properly position themselves to enable them operate within the framework of the power of the dynamic nature of Information Communication Technology they must review their service delivery system.

The Rural Banking Sector in this country has witnessed incredible transformation that is as a result of the gradual advancement in Information and Communication Technology (ICT) over the past ten (10) years. The pursuit of sustenance of the rural bank business, their significance, maintenance of existing market share and sustainable growth has facilitated the exploitation of the numerous advantages of Information and Communication Technology through the use of technologies vital in the Rural Banking Sector.

This study evaluates the effectiveness of the implementation of the Rural Banks computerization project by Rural Banks in Ghana and to examine some of the challenges and the degree to which they have incorporated technological innovations into their banking operations and its resultant effects.

1.1 Statement of Problems

Rural Banks computerization projects by The Government of Ghana under the auspices of the Millennium Challenge Account (MCA) could be a powerful strategy or system to improve on the mode of operation of the Rural Banks in Ghana to enable them reduce or improve the inconsistencies in their book keeping and service delivery.

It will be expedient to point out that computerization of the Rural Banks in Ghana and all its advancement and sophistications has not yet succeeded in effectively archiving this intended mission. The reason is not just the fact that some Rural Banks have failed, but some factors continue to militate against the successful performance of the system at the banks rather than the computerization project improving on the service delivery of the Rural Banks, most of the rural banks are not fully utilizing the system and this has compelled some of the rural banks to stop using the T24 Banking Application, whiles other rural banks are reluctant to join because of the numerous challenges confronting most of the Rural Banks.

In a similar vein, most Rural Banks running on these systems have performed poorly whiles others too are gradually opting out of the computerization project by way of finding out alternative software to cater for their needs and to improve on their operations.

There have been serious of negative rumors surrounding the computerization project thereby compelling the yet to join rural banks feeling reluctant to do so for the fear of the system affecting their banking operations. The problem of poor infrastructure in some of the rural banks has been rumored and arguably been traced to some of the few factors that have been responsible for the conditions in which rural banks have found themselves in today.

The effect of computerization project failure has been attributed to poor networking infrastructure by some of the Rural Banks. They believe it is one of the spicing board in the IT/IS deployment in Banking. Some of them too were of the opinion that, lack of proper IT training before T24 Banking Application go-live might be a contributing factor.

It is in this light that the researcher has decided to find out remedies to the numerous concerns raised by the rural banks and to look at the impact of planning, training and staff IT knowledge on the effectiveness of the computerization project using Odotobri Rural Bank and Amanano rural bank as the case study.

Research Objective

The general objective of the study is to determine whether Odotobri and Amanano Rural Bank Limited meeting their objectives of joining the MCA Rural Banks Computerization Projects and to critically appraise the implementation process.

Specific objectives of the study include:

i. To identify the challenges (if any) from the Computerization project
ii. To investigate how the challenges emanating from the computerization project is affecting Rural Banking operations i.e. Amanano and Odotobri Rural Bank Limited.
iii. To access the extent to which the Computerization project has impacted on Rural Banking operations.
iv. To examine whether computerization has improve the fortune of the Rural Banks.
v. To suggest systems and remedies that the Apex Bank and the rural banks should put in place to checkmate such challenges in the future

2.0 Literature Review

In order to understand the transition process for the Implementation of the Ghana Rural Bank Computerization Project, it was necessary to explore the literature in various areas. This chapter presents a comprehensive review of relevant literature concerning the subject under study. It takes into consideration a critical look at the evolution of Information and communication Technology in Rural Banking in Ghana and how computers were introduced in their operations. As can be seen from subsequent sections in this chapter, the subject of computerization and its impacts on Rural Banks has been extensively studied the world over. However specifically on the effects of computers on Rural banking operations on the quality of service in Ghana has limited empirical literature. This demonstrates a need for further studies on this topic and provides the rationale for this dissertation.

2.1 Review of Information Technology in Rural Banking in Ghana

Information and communication Technology has been very essential in today's competitive business, and Rural Banks have been seen as the backbones of Ghanaian Economy. Rural Banking in Ghana today is now in the pivot of Information and Communication technology transformation. For now all Commercial Banks, Savings and Loans Companies and Microfinance Institutions are going for and Information and Communication Technology revolution.

The application of Information and Communication Technology in Rural Banks in Ghana has reduced the scope of traditional or conventional banking with manual operations. Mantey, (2011).

Currently, Rural Banks in Ghana are gradually moving from disbursed to a centralized environment, which shows the impact of Information and Communication Technology on Rural Banks. Banks are using new tools and techniques to find out their customers need and offer them tailor made products and services. The impact of automation in Rural Banking sector is difficult to measure. Mantey, (2011).

How Rural Banks control, process, and disseminate information and how they manage the technologies associated with it as the information and communication technological age progresses are becoming increasingly critical. Planning and implementation of information technologies is an involved and complicated endeavor, and becomes more so with each new innovation. It is no longer enough to simply automate clerical tasks or transfer reams of data into a computer.

Rural Banks are gradually becoming technologically savvy and therefore they must make use of the integrated information systems, which will not only allow them to process data and perform operational duties but also provide services in a more effective, efficient and user-friendly way. Integration of Electronic Financial Analysis and Surveillance System (eFASS) can offer better ways to provide prudential reports for managers and Bank of Ghana but getting there is no easy matter. This section of the review focuses on the different areas that are integral to understanding the issues surrounding information and communication technology implementation in Rural Banks.

This literature review will ground the study of Rural Banks Information and Communication Technology development and deployment processes with the underlying focus on planning, procurement, and implementation problems in the field of Information Systems Management. The foundation of this particular issue will serve to describe problems that are part of a very specific management process which lack a distinct definition as the other managerial processes. By the establishment of the basis of this research in the field of Information Systems Management, it provides the unavailable basic history throughout the review of Information Technology implementation literature in Rural Banking alone, but rather these study places Management Information System and Information Technology implementation in its proper perspective and also given room for a tractable body of literature.

One of the greatest challenges of this study has to do with the semantics of the topic area. Management of Computerization projects in the rural banks has been noted to have deep and widespread theoretical underpinnings; this assertion is partially due to the inclusion of the word "information" to the management of the whole project and its implementation. Immediately management of information becomes part of the whole computerization project, then the "baggage" of data must be addresses. The continuous challenge with developing theories around data in the management of the computerization project is essential in the success of the project. Data is only as good as the individual describing it. When dealing with data individuals often lack the necessary expertise or background knowledge to properly express meanings and implications. The same is true for general discussions of information, and it is certainly true with regard to information technologies. Individual constructions of meaning and understanding are quite varied and difficult to express to a diverse or non-expert audience.

This review of the literature in essence is related to Information Technology implementation in Rural Banking, consists of two sections that basically bring into focus the study and writings that provide the backbone for this research. Basically, this review will provide a broad spectrum of the information available that is related to Information Technology implementation in rural Banking. Unfortunately, not much literature exists with regard to information technology and rural banking, and that which does exist lacks breadth. As an area of research, IT implementation in rural banking is a management issue and as such draws from a number of different areas,

management of information systems, planning, procurement, implementation, and general discussions of rural banking.

2.2 Evolution of RCBs

Before the establishment of the first rural bank in 1976, the availability of formalized credit facilities in rural areas which predominantly consist of peasant farmers and fishermen was woefully inadequate. Their main sources of credit were traders and moneylenders charging very high interest rates. Policies were laid down by the Government of Ghana to improve access to finance in rural communities. These policies included a requirement that all commercial banks should lend at least 20 % of their total portfolio for agricultural uses which later on lead to the formation of the Agricultural Development Bank in the year 1965 with a restricted mandate to lend to agricultural and allied industries in rural communalities in Ghana. These later on lead to the establishment of branches in the rural areas by Agricultural Development Bank and the Commercial Banks by focusing on cocoa growing rural communities. However, lending to the rural communities still remained very low; commercial banks uses there branches in the rural communities to primarily mobilize deposits for lending in the urban areas and also make payments to cocoa famers. Some of the other banking services which include credit were not provided as part of their initial plans. The Commercial banks were demanding higher interest rates, huge amount of deposit in customer's savings accounts and stronger collateral requirements to grant loans to rural communities. Peasant farmers and fishermen did not have savings accounts in the commercial banks, and their collaterals were inadequate to meet the criteria for lending at the commercial rate (Steel and Andah 2003). Mensah (1993) and Ranade (1994) observed that the credit provision and coverage made by agricultural Development Bank's were inadequate. The commercial banks had 27% of their branches in the rural communities and leading to peasant farmers amount to approximately 15% of their total portfolio.

In this vain, the Government of Ghana later on decided considering the supporting of the establishment of Rural and community banks in rural areas whose soul responsibilities were to provide financial services in these communities . Bank of Ghana under the instructions of the Ghana Government sent a delegation to the Philippines to under study how the rural banking system is being run there and afterwards decide to facilitate the establishment of the rural banks in the rural communities where farming and fishing is their main source of livelihood.

2.3 The Establishment and Growth of RCBs

Rural banking was first started in Central region of Ghana in 1976 with a startup capital of GH¢6,066.00. It was established in Nyakrom, a farming community. Their Capital contributions were basically mobilized from farmers around the rural area.

Another branch was established in the same year at Biriwa, a fishing village which is located in the central region of Ghana. The number of rural and community banks had reached 20 by the year 1980.

Directors, General Managers or supervising managers of these rural and community banks founded the Association of Rural Banks to facilitate the exchange of information and also help improve the performance and management of rural and community banks in general. During the year 1980 to 1984 the number of community and rural banks were established which increased the number to 106. Rural communities took keen interest in establishing their own community banks that help the government in introducing the Akuafo Cheques in the cocoa growing areas in the year 1982. This was the cause for the growth of the rural banks almost at every farming community in the country.

The Bank of Ghana therefore developed and issued modalities for the establishment of the rural and community banks in 1985 as the network of rural and community banks kept on growing. This was very essential to monitor the activities of the rural and community banks.

Paid-up capital of GH¢ 1.5 million was required by Bank of Ghana as a rural and community banks minimum startup capital for the commencement of business. Shareholders of the rural banks were to contribute 67 % of the paid-up capital whiles 43 % will be contribution from Bank of Ghana. Individual shareholders have the chance of purchasing a maximum of GH¢10,000 as their limit of shares one can purchase from the rural and community banks. This was to enforce equal participation of citizens or community dwellers to own shares in the rural banks and also to mitigate against the risk of few shareholders dominating the management and governance of the banks.

The main function of the rural and community banks was to provide product and services such as savings and credit facilities to their clients. With the proliferation in the rural and community banks, it has caused their client base to also increase tremendously. Bank of Ghana used the rural banking network to transfer pension deposits and salaries of civil servants. The total volume of deposit mobilization grew from GH¢ 148,000 in 1976 to GH¢ 2.3 billion in 1988. During the accumulation of the credit facilities, the loan portfolio consolidation grew up to approximately around US$4 million, with agriculture taken half of the portfolio whiles 30% was dominating the rural industries.

However there was drastic increase in delinquent loans, with nonperforming loans increasing its portfolio from 5 % in the year 1982 to 70 % in 1986. The stated capital available in most of the rural banks was woefully inadequate to manage total cost of the bad loans.

Although the 1983 famine in Ghana, the 1984 bumper harvest and the drop in prices of commodities has contributed immensely to the delinquent loans, there are other factors that contributed greatly to this gradual deterioration.

Firstly, it was observed that the majority of the boards of directors in most of the rural banks had little or no knowledge in daily banking operations. This was a clear indication that selection criteria for the board of directors did not incorporate the individual's competence as part of the requirement for one to spear head the activities of a rural bank. An applicant's popularity in the community was the main criterion for the selection.

Secondly, services of well endowed and knowledgeable people in the field of banking who hailed from that locality could not be utilized as a result of the banks being located in the rural areas. The limited resources of the rural banks were also another factor preventing them from attracting the services of this experienced natives of the town.

Employees of the rural banks were appointed from their own communities, irrespective of their qualifications and knowledge in banking operations. It was also notice that Training and awareness creation in the field of banking for their staff was not part of the strategies to equip them in the field of banking

Thirdly, Weak internal controls which led to leakages of income, suppression of cash and interest were among a few of the corrupt practices by staff and management which happens to be one of the main contributing factors.

Fourthly, there were credit quotas for specific sectors and other unfortunate regulatory requirements (i.e. reduced interest rates for agriculture which forms part of the priority sectors for the government) constrained the rural and community banks ability to flexibly respond to signals from the market and some of the risks unique to rural and community banks. Specifically, this compelled the rural and community banks to give many bad loans to meet the 50 % lending requirement for agriculture obligations by the Bank of Ghana.

Fifth, the resources from Bank of Ghana were inadequate and limited thereby preventing them from having the capacity to supervise the rapidly increasing number of rural banks and also to manage them effectively and respond to their numerous complex difficulties.

Bank of Ghana therefore injected new financial reforms into the rural banking system to help them reduce their worsening performance.

These financial reforms incorporated a review of the credit quotas for specific sectors such as agricultural and a drastic reduction in agricultural loan disbursement, mobilization of funds to increase their secondary and primary reserve requirements, closure of non-performing banks, and to empower and offer stronger roles to the Central Banks to monitor, examine and control the operations and activities of the rural banks (Andah and Steel 2003). The World Bank in collaboration with the Government of Ghana supported Rural Finance Project, which was approved in 1989, further advanced the improvement and stabilization of these reforms. The project was aimed at strengthening the rural finance industry, particularly the rural and community banks, by

1. Offering technical assistance to the rural and community banks in an attempt to restructure about 80% of the banks ;
2. The credit unions and the Apex Bank are to be Strengthened
3. Ensure that the Rural Banking Department at the Bank of Ghana and Apex Bank roles have been rationalized
4. Try to improve how the rural banks and credit unions embark on their credit appraisal and also review their appraisal capacity
5. Ensure that the Bank of Ghana's capacity to supervise the rural and community banks is strengthened.

2.4 Ghanaian Rural Banking Services

The rural and community banks that now serve as financial intermediaries in the rural communities offer primary services that consist of loans, savings, and payments. There are a number of products that are provided within each of these categories. In view of the community ownership based nature of these financial institutions, they also generally support and promote community development services that form part of their corporate social responsibilities.

Rural and Community Banks offer special products and services for specific targeted associations or groups on behalf of donor-financed programs and government, such as the Social Investment Fund, Microfinance and Small Loan Center, the Millennium Development Authority and the Community Based Rural Development Project.

The Rural and community banks use numerous strategies to promote their products and services, which include the use of print and electronic media and also traditional outreach by the staff of the rural banks. For example, some of the rural banks use the local FM radio stations in their community to to promote their products

(precisely microfinance) and disseminate the information about the services available at the rural banks. These strategies have been proven to be successful in reaching many of their customers in the remotest parts of their catchment area. Quite a number of social gatherings such as church fund raising, funerals, out-dooring ceremony, engagement ceremonies etc. have been used to broadcast vital information such as reminders for their repayment to their clients.

2.4.1 Customer Deposit Portfolio

Rural banks offer all the general savings products such as the regular savings accounts, current accounts, and time deposits. Basically, rural and community banks have their largest share of deposit portfolio held in their savings account. Interest rates offered on these accounts are typically very low, however, and often negative when inflation is taken into account. Some banks were sampled in 2008, with interest rates on savings deposits varying from 5 to 16 %, while inflation ranged between 11 and 18 %. Further, interest on savings accounts is often provided only when the savings balances are more than a specified amount. Unlike in most commercial banks, however,

Higher minimum deposit is not a requirement to maintain a savings account and this does not attract exorbitant ledger fees.

Private individuals and corporate entities who have the need of an account in which their various items of income can be paid i.e. possibly a monthly salary or any source of income can be credited directly to the account and from which cash can be drawn as required by slips or cheques from the Teller or cashier.

An account holder may also valid himself on a number of other services, which can be briefly listed below:

2.4.2 Standing Order or Direct Debits:

Regular payments will be made to the Bank on behalf of the customer by the method of his choice in conjunction with the beneficiary. Such agreement can be change at any time by the holder of the account as he deems it fit to do so. Such transactions do not attract any charges from the customers.

2.4.3 Deposit Account, Investment Account or Budget Account:

In addition to an account holder he may wish to keep some excess funds on deposit account on which interest is paid and to which immediate access on usually allowed subject to the loss of interest for the days. In addition, if he has funds to invest on a longer term basis, an investment account would be appropriate (some Banks have various names for such accounts) on which higher rate of interest is paid, but a period of notice is provided/insisted upon to provide of notice is provided for payment of his un-even flow of house bill, the customer may wish to transfer a sum of money from his normal current or saving account to budget account each month to cover, these over the year, he will receive interest if and when he is over drawn.

For children's also there are specified saving accounts on which a favorable rate of interest is paid and a home safe may be provided.

2.4.4 Money Transfer Facilities:

An electronic Funds Transfer system (e-Switch) that aids the clients to transfer cash instantaneously from their bank accounts to another merchant's account when buying a product or paying for a service (at purchase points). The Point of Sale terminal uses a debit card to activate an Electronic Funds Transfer Process for customers during a money transfer transaction(Chorafas, 1988).

The increased in the productivity of a rural bank is as a result of the use of EFTPoS to service customers requirements from shopping payment instead of clerical duties such as cash withdrawals and handling of cheques for shopping.

2.4.5 Loans and Overdraft

The customer may wish to supply for temporary overdraft from time to time over or during an expensive period or until some expected payment is received, or a loan for a specific purpose, such as cars, funds or home improvement. When buying a house the account holder may also apply for mortgage from the Bank on alternatives going to a building society.

2.4.6 Stock and Shares

Where a customer has no account, with a stock dealer he may instruct the Bank to buy or sell stocks or shares on his belief. He may also ask his bank to look after share certificate for him as well as other valuables on safe custody. A customer with an approvable amount of capital invested in stock and shares may wish to use the services of the Bank's investment development. They will manage his investment for him completely, if he wishes them to do so, switching in and out of stock and shares as they think fit or alternatively he may simply consider their recommendation and make his own decision about buying and selling securities and instruct accordingly.

2.4.7 Status Enquiry

A private account holder may wish to make status enquiry concerning some person or firm with which he is going to have dealing. It is more likely however that he will want the bank to answer status enquiries on him from business firm who (for instance) are supplying him with goods on credit.

2.5 Technological History of Banks in Ghana

Over some time now, rural banks and almost all financial institutions in Ghana have attached so much importance

to technology in their daily banking operations. Traditionally, the quest for a media through which banks will serve their customers cost effectively and also increase their utility to their clients is of prime concern to them and rural and community banks has also taken keen interest in it. Their prime concern is to serve their customers more effectively and conveniently in an attempt to maximize profit and improve their competitiveness. Communications and Electronic technologies have been adopted in banking operations extensively for quiet a number of decades to improve banking activities. The initial forms of communications and electronic technologies employed in Ghana were basically devices designed for office automation. Facsimile, telex and Telephones, were employed to make more efficient transactional process and to speed up service delivery to customers. Communication and information technologies have still remain the main technologies used over the last decade in banking operations in Ghana.

During the 1980s, as banks and financial institutions were growing, there was an increase in competition that lead to the proliferation of personal computers, banks in Ghana started using them in their back office transactions and subsequently helpdesk, teller or cashiers used them to provide counter services to their customers. The gradual advancements in computer and communication technology, has compelled the banks and financial institutions to network their operations and branches in an attempt to make their one branch philosophy an established dream. Standard Chartered Bank (Gh.) and Barclays Bank (Gh.) championed this very important electronic novelty, which transformed the banking landscape in Ghana.

One of the most revolutionary electronic innovation and widely accepted technologies in banking all over the world and in this country has been the Automated Teller Machine. Currently banks in Ghana who uses Automated Teller Machine in their service delivery have networked them and this has enhance, improved their utility and service delivery to their clientele. The first Automated Teller Machine in Ghana was installed by The Trust Bank in 1995. Immediately after that most of the other financial institutions started their Automated Teller Machine networks at strategic positions such as gas stations, business centers and shopping malls. In 2001 Ghana Commercial Bank commenced its Automated Teller Machine service delivery which was in partnership with (ADB) Agricultural Development Bank. Currently a greater percentage of banks operate Automated Teller Machine in Ghana. The Automated Teller Machine has been arguably been discussed as the most successful service delivery system or medium for clients in the banking industry in Ghana. Clients consider it as of prime importance in their quest for a bank to transact business with, and financial institutions that delayed the realization of their Automated Teller Machine systems, have paid dearly for it as a result of a greater number of customer lose which will gradually take a longer time to repair. The Automated Teller Machine have been able to concretize the one branch philosophy by the banks in Ghana, as it is been networked, people for now do not have to necessarily to their bank branch in respect of business transactions such as checking of balances and cash redrawal .

There are various types of electronic cards that has been developed by the banks over the years that forms another innovations in technology in our banking sector today. In May 1997, Soceite General (SG-SSB) which was then social security banks introduced the first cash card which was a value card called “Sika Card”. It operates by electronically loading cash amount onto it.

Standard Chartered Bank also introduced the first debit card in Ghana during the beginning of 2001. Standard Chartered Bank have integrated the debit card with their clients Automated Teller Machine cards, which has increase the availability of the service to the entire public, this is to prevent a separate banking application to enable one access the system.

In November 2001 a conglomerate of three banks i.e. Cal Merchant Bank, Ecobank and The Trust Bank launched a further new development in the electronic card system which is called ‘e-Card’. The e-Card operates at online in real time, this implies anytime a credit or a debit transaction the account balance of the customers their card is also automatically updated to effect the change

Although Automated Teller Machine has carved a successfully notch for itself because of the diverse utility that comes with it, ATM has been able to reveal the possibility of banks improving on their profitability and competitive stance by the provision of more convenience to their customers.

Information and communication technology was what has saved the day once again; thereby making it possible for office, banking and home services a reality in this country. Some banks in Ghana initially commenced the offering of PC banking services precisely to their corporate customers. They ensure the provision of proprietary software to their clients which enable them to connect to the banks thereby offering them access to their account balance via the World Wide Web. These services were basically limited since it was targeting their corporate customers. Banks such as Standard Charted Bank, Commercial Bank, Ecobank ,Stanbic Bank and Barclays Bank are the main financial institutions noted for the offering of PC banking services. For now banks can give a customer instant statement via email immediately one’s account is been affected by any transaction.

Banks in Ghana have now embraced the internet as a tool representing the avenue to maximize profits margin and their competitiveness. Currently, some bank are gradually taking up the challenge of providing internet banking in this country, but some are not so keen about engaging in such venture which the initial cost is looking more threatening. Barclays Bank Ghana Limited, Standard Charted Bank and Ecobank, also intend replicating the

same service in the future.

Telephone banking has been one of the innovations that has also introduced great convenience and time into the system. In August 2002 Barclays bank introduced telephone banking services into their operations. This lead SG-SSB in September 2002 to also launch its SG-SSB "call centre or sikatel" into their operations. The services accompanying this system involves credible information enquired about the services and products of the bank, bank statements, cheque requisition, customer complaints and inquiries from customers

2.6 Computer Networks in Ghana

The traditional payment model in Ghana was the "brick and motar" system, this is similar to the expansion of branches of our banking networks thereby necessitating the compulsory appearance of clients to transact banking business. This kind of system was confronted with numerous challenges notable among them were the high cost of infrastructure, insecurity, inconveniences, inability to access real time information, high cost of transaction, cumbersomeness and high business risk.

Currently, the rural banking industry has significantly been influenced by evaluation of innovative technologies; growing utilization of computerized networks to rural banking industries has increase the speed of services and reduced the cost of transactional sustainability.

These financial intermediaries have compelled banks to improve their production technologies thereby focusing on the destination of the services and products.

Interestingly, the emergence of banking technologies has been driven by the change in the distribution channels that is a clear indication of the Automated teller machines, Over the Counter, Personal Computer Banking, Phone Banking and most currently Internet. It is pretty obvious to note that the progress in the technologies employed in the Ghanaian banking industry is the contributing factor to our current consumer driver nature of our marking networks. This has resulted in the growth of the Automated Teller Machines across Ghana whiles there has also been an increase in the number of bank branches linked by complex electronic systems.

2.7 Information and Communication Technology (ICT) in Rural Banking

Managers and staff of Rural Banks cannot ignore Information Systems because they play a critical role in contemporary organisation. The application of information and communication technology concepts, techniques, policies and implementation strategies to rural banking services has become a subject of fundamental importance and concerns to all rural banks and indeed a prerequisite for local and global competitiveness. ICT directly affects how managers decide, how they plan and what products and services are offered in the rural banking sector. It has gradually transformed the way rural banks and their corporate relationships are managed worldwide and the variety of innovative devices available to enhance the speed and quality of service delivery.

Information and Communication Technology (ICT) is the automation of processes, controls, and information production using computers, telecommunications, software's and other gadget that ensure smooth and efficient running of activities. It is a term that largely covers the coupling of electronic technology for the information needs of a business at all levels. ICT has surpassed the role of support services or only electronic data processing; its fields of applications are slightly global and unlimited. Its devices especially the Internet and modern computer email facilities have further strengthened early modernizations like the telephone and fax.

Other ICT devices include data recognition equipment, factory automation hardware and services, telecomputing and teleconferences using real time and online system (Abor, J., 2005).

It is a concept that is having a remarkable effect on almost entire aspects of the human endeavours. This implies that it involves the application of principles to engage physical component in achieving an intended goal. The merging of computer and telecommunication after about four decades of applying computers to routine data processing, mainly in information storage and retrieval, has created a new development where information has become the engine of growth around the world. This development has created catch-up opportunities for developing countries such as Ghana to attain desired levels of development without necessarily „reinventing the wheels" of economic growth. This new technology has brought far-reaching revolution in societies, which has tremendously transformed most business (banking) scenes (Agyei-Mensah, 2009). Essinger et al (1999) itemized some rural banking services that have been revolutionized through the use of ICT as including account opening, customer account mandate, and transaction processing and recording. Information and Communication Technology has provided self-service facilities (automated customer service machines) from where prospective customers can complete their account opening documents direct online. It assists customers to validate their account numbers and receive instruction on when and how to receive their cheque books, credit and debit cards. ICT products in use in the banking industry include Automated Teller Machine,

Smart Cards, Telephone Banking, Electronic Funds Transfer, Electronic Data Interchange, Electronic Home and Office Banking.

Harold and Jeff (1995) contend that financial service providers should modify their traditional operating practices to remain viable in the 1990s and beyond, they claim that the most significant shortcoming in the banking

industry today is a wide spread failure on the part of senior management in banks to grasp the importance of technology and incorporate it into their strategic plans accordingly, Woherem (2000) claimed that only banks that overhaul the whole of their payment and delivery systems and apply ICT to their operations are likely to survive and prosper in the new millennium. He advices banks to re-examine their service and delivery systems in order to properly position them within the framework of the dictates of the dynamism of information and communication technology. The banking industry in Ghana has witnessed tremendous changes linked with the developments in ICT over the years.

Brücher, Scherngell et al. (2003) opined that ICT adoption will improves three critical domains which are efficiency, quality, and transparency in any organisation**.** Agboola et al (2002) discussed the dimensions in which automation in the banking industry manifest in Ghana. They include: Bankers Automated Clearing Services: Automated Payment Systems, Automated Delivery Channels.

Agyei-Mensah (2009) concluded that banking in Ghana has increasingly depended on the deployment of Information Technology and that the IT budget for banking is by far larger than that of any other industry in Ghana. He contended that On-line system has facilitated Internet banking in Ghana as evidenced in some of them launching websites. He found also that banks now offer customers the flexibility of operating an account in any branch irrespective of which branch the account is domiciled.

Osei-Bonsu (2010) revealed that rural banks in Ghana since 1980s have performed better in their investment profile and use of ICT systems, than the rest of industrial sector of the economy. An analysis of the study carried out by African Development Consulting Group Ltd. (ADCG) on IT diffusion in Ghana shows that Rural banks have invested more on IT, have more IT personnel, more installed base for PCs, LANs, and WANs and a better linkage to the Internet than other sectors of the Ghanaian economy. The study, however pointed out that whilst most of the banks in the west and other parts of the world have at least one PC per staff, Ghanaian Rural banks are lagging seriously behind.

Agyei-Mensah (2005) opined that the revolution in ICT has made the rural banking sector changed from the traditional mode of operations to presumably better ways with technological innovation that improves efficiency. ICT can enhance efficiency via its use and in recent times banks have been encouraged by the rapid decline in the price of ICT gadgets. This has perhaps increased the bank level of ICT usage. The increase might have also been attributable to business environment that became relatively flexible to accommodate new forms of technological change as a result of reforms in the country.

According to Wali (2010) the relationship between ICT and the various organisational activities is similar to government & civil servants while Governments outlines policies and civil servants execute those policies. ICT acts as a tool for the actualization of various organisational activities in order to implement and enforce policies.

Osabuohien,(2008) established that while the gender of the rural banking officials does not affect efficiency in ICT use, factors such as age, educational qualification, computer literacy and type of ICT gadgets, were significant in influencing banks‟ intensity of ICT usage. Also ICT was found to impact positively the speed of banking service delivery, as well as productivity and profitability.

Rural Banks should incorporate ICT into their strategic plans for effective performance in payment and delivery systems. This calls for proper analysis to determine the type, nature and extent of ICT products required for effectiveness and efficiency. It is imperative for rural bank management to intensify investment in ICT product to facilitate speed convenience and accurate service. Orhan (1997) observed the relevance of a modern information infrastructure to the economic and social well-being of a society as the quality of the information determines the effectiveness of any given choice. Wisdom, knowledge and information infrastructures promote dialogue between those holding various ideas. It is only in an atmosphere where reliable facts and figurers are available that citizens can form opinions, express preferences, hold government officials accountable for their actions, and that democracy can thrive and reach a consensus on the policy options towards desired objectives.

The rural banking business is becoming highly ICT based due to its inter-sectoral link; it appears to be reaping most of the benefits of revolution in technology, as can be seen by its application to almost all areas of its activities (Akinuli, 1999). It has broadened the scope of banking practices and changed the nature of banking as well as the competitive environment in which they operate. A broad opening has been experienced around the world for rural banks and they are currently taking due advantage of these innovations to provide improved customer services in the face of competition and faster services that enhance productivity (Agyei-Mensah,2005).

Technological advancement facilitates payments and creates convenient alternatives to cash and cheque for making transactions. Such new practices have led to the development of a truly global, seamless and Internet enabled 24-hour business of banking. Technological advance in payments are important due to the fact that it will be feasible to outsource quite a number of the banks‟ role in the payments system. Also rural banks regulation can be more technologically dependent and better focused rather than focusing on conceptual guidelines. ICT revolution both in terms of innovation rate, speedy operation, and cost per unit (portraying reduction in average total and marginal costs) has made a good number of banks embrace the use of ICT infrastructure in their operations (Akinuli, 1999). However there may be little interruptions at times due to network failures, which may

make customers unable to carry out transactions at a particular point in time. This little shortcoming is not in any way comparable to the days when rural banking halls were characterized by long queues mainly as a result of delays in the traditional banking operations.

2.8 Planning and Information Technology in Rural Banking

Planning is a major endeavor in the research and discussion of Information Technology implementation. Though it is not the purpose of this research project to explain the utilization and strategic planning development, it is important to review the current thinking on the subject because this area provides one of the primary pivot for this research. A significant number of the issues that will be addressed are directly related to the planning phase of IT implementation.

Over the course of the last decade rural banks have increasingly made use of the process of strategic planning. It should be noted that strategic planning arose out of the rural banks as a process designed to minimize risks and maximize profits, by establishing formal planning systems to replace, older, informal, intuitive methods. Because it has been a primarily rural banking industry project, most of the research and writing done on the topic focuses on market share and profit. This factor does not detract from the reality that strategic planning can certainly have an impact on a rural bank's success and effectiveness. Rural banks can certainly benefit from strategic planning because of their need to address the present and plan for future possibilities with regard to the viability of their operations. Strategic planning is a process which creates a product, usually in the form of a written, comprehensive, long-term strategy for determining priorities, allocating limited resources and measuring progress. In his discussion of strategic planning in rural banks, Gordon argues strongly that, strategic plans provide five important aspects for rural banks. The first, anticipation of the future, can prove instrumental in improving the chances of rural bank's success by helping managers comprehend the future and the position of their banks within IT. This particular aspect includes processes for the anticipation of future problems and opportunities so that they may be appropriately addressed. The second aspect, assessment of the rural banks, forces individuals within the bank to come together in order to discuss strengths and weaknesses of the rural banks where it's going, and how best to get there. Rural banks staff goal setting and consensus building is the third aspect described by Gordon. This stand promotes specific short and long-term goal setting towards ultimate achievement of consensus around these goals. Through consensus the likelihood of achieving goals is enhanced and in addition, promotes compromise across the banks. A fourth aspect, allocation of resources, facilitates the difficult process of personal and capital resource allocation. In the process of allocation, all of the potential demands and impacts of providing resources to one particular project over another (possibly equally important) proposal must be considered. The final aspect that Gordon addresses deals with the establishment of benchmarks. This particular view speaks to the ability of organizational leaders to make use of predefined goals and objectives to provide direction at the outset of any new project or directive.

Benchmarks, as discussed here, also provide measurement standards by which performance can be ascertained.

While formal strategic planning is not, "a panacea for resolving rural banking conflicts" it should produce the following results: a rural banks mission statement; an environmental scan with a three to five year horizon; basic long-term goals and basic one year goals; strategies and steps for action to move the bank toward the set goals; and, finally, implementation plans with assigned responsibilities for action. Above all, strategic planning should not be regarded as the end point or an unalterable product. It should not fail to question preconceived notions or assumptions before adding or incorporating into the plan. Gaining rural banking commitment is important, but not adopting wrong or un-implementable goals should also be stressed. According to Gordon, argued that, in order for strategic planning to be effective, it must be fully accepted at the senior-most levels and integrated into the lower level in the rural banks as both a product and a process.

Strategic planning is a tool that can be used by rural bank's Managers who are the decision-makers to enhance their decisions and help them make more informed choices. In order to be effective, strategic planning must be ongoing, always adapting to the changes in rural banking environment and direction. If used in a proactive manner, strategic planning can assist or facilitate direction, consensus, and resource prioritization.

The relationship of information technology and strategic planning essentially developed out of two trends which occurred in the 90s. The first of these trends began in the early 1990s with the push for a single integrated approach to ICT which could be used across entire banks. It quickly became apparent that this approach was doomed to failure due to the complexities inherent in the process of managing ITs across multiple levels of banking organizations. By the late 90s, an approach which integrated separate but interrelated information systems throughout the organization became the norm, especially for bigger banks. This approach developed into a second trend which still exists in rural banks today that is, information systems interwoven into the management processes of the rural banks. With this trend comes recognition of the pressing need for long range planning with regard to information systems and the activities of ICT departments. This direction also speaks to the importance of interrelating this long range IT plans with the comprehensive corporate planning subsystems. Current IT planning

trends recognize that each strategic plan is unique to the specific characteristics of each individual organization. In addition they must be equipped to cope with the fact that system changes are inevitable and for that reason, the strategic plan must be flexible.

McLean and Soden (1977) view IT planning as a conjunction of two basic perspectives: time horizon referring to short, medium, and long term planning; and focus relating to the principal concerns of the plan which may be strategic, managerial, or operational.

According to these authors strategic planning for Information Technology is "vital to ensure that the role played by ICT will be congruent with that of the overall organization". Information technologies and their applications for rural banks have evolved exponentially over the last 20 years, essentially becoming an integral and imperative part of all rural banking processes. The symbiotic nature of IT and organizational operations necessitates the increased involvement of all levels of management in the Information Technology deployment and development process. No longer is it acceptable or suggested to leave total discretion over key IT decisions to an IT department or individual IT specialist and its impact on the rural bank is too great. According to Ward the more dependent that a rural bank becomes on IT the more centralized and structured the approach to planning and control should become. This does not mean that IT planning should be exclusively the domain of top management, on the contrary, the facilitation of IT innovation and effective use demands the participation of users at all levels of the organization in the planning process.

Sullivan (1985) describes this situation and calls for a complex but balanced set of management approaches referring to this as "eclectic IT management". Essentially, Sullivan's eclectic management approach is a prescription for IT planning processes that are tailored to the specialized and individual circumstances which are determined by the rural banking industry of a given bank and it's particular company culture.

By the late 1980's, rural banks across the board were recognizing the need for strategic plans specific to information technology implementation. In 1988 Lederer and Mendelow conducted a survey of 20 private sector organizations in an attempt to determine the problems senior management were having with regard to the development and implementation of IT strategic plans. In their study the researchers found five reasons for the problems that were occurring with IT planning:

1. Managers tended to view ITs as operational tools and did not recognize their impact on the organization
2. Managers perceived a gap between industry claims of what ITs could do and the difficulties of their organizations in duplicating those claims
3. Managers tended to view ITs as critical to the organization only when it impacted their needs for information or services otherwise they failed to see their facility as a resource
4. Managers constantly focused on financial justification for IT investments
5. Finally, top management had become increasingly action-oriented with a short-term focus to the detriment of long-term planning especially for IT.

A similar survey of UK banks was conducted to identify a variety of deterrents to effective strategic planning and implementation of ITs. This survey found that the perceptions and attitudes of top management towards IT planning and implementation were not as critical as the ability to measure the benefits of the strategic plan, the provision of IT skills to users, and the ability to make use of ITs to deal with business uncertainties.

The main point to be garnered from the existing literature on strategic planning and IT implementation is that, for most organizations, making use of some form of IT strategy which makes the attempt to link organizational objectives and priorities to IT plans is preferable to not having any formalized plan at all. There are a variety of problems which plague organizations which stem, at least in part, from the lack a strategic plan of some sort.

While there are a number of writings and research studies on strategic planning in the rural banking there are very few which focus on the specific nature of strategic planning for information technology within that arena. Information technology planning differs from the standard planning process due to a number of factors: IT planning must generally be oriented on the budget year as opposed to a more strategic 2-5 year horizon; much of the focus of IT planning is directed toward the organization as opposed to staff or customer usage; IT strategic planning focuses on the technologies themselves as opposed to solutions to organizational problems; and, finally, IT strategic planning must focus on incremental changes. Early on in the development of information technologies, researchers recognized the importance of formalized planning processes with regard to IT. They delineated the importance of IT planning specifically for executives and department heads in rural banks. Kraemer and King went so far as to say that the "ultimate success or failure of an organization's use of computerized systems can be traced back to decisions made during planning by management.

Strategic planning which specifically addresses the area of IT implementation can have a number of benefits which impact the entire bank. Among other possibilities this approach allows for continual adjustments and alignment to the needs of the IT end users. It also permits the development of a formalized framework for the coordination of previously duplicated actions and more economical use of limited resources. This in turn can lead to a more formalized framework for the prioritization and allocation of resources across the board. By achieving an IT specific strategic plan, a more process oriented approach to identifying shifts in technology may be realized

thereby placing an organization in a better position to adjust to a rapidly changing environment. Another important benefit is that it provides a more holistic view of the role of IT in an organization and allows for a process which facilitates strategic thinking with regard to IT instead of an approach that is doomed to the constant task of putting out fires. Finally, a strategic plan specific to IT implementation may allow the bank to go further towards the realization of it's goals with regard to Its. This process of putting out fires is a recurring theme in IT implementation. IS professionals and those who have to deal with IT seem to be constantly on fire patrol rather than working ahead of the problems and ultimately defining their destinies. Synott and Gruber address this problem with what they term a "fire prevention cycle". Their cycle is essentially a call for more proactive IT planning. The cycle starts with creating specific time to plan for IT which in turn should lead to less problems that need to be solved which in the end should provide more time for future planning. In order to achieve this, the authors state clearly that planning for IT demands the involvement of not just the IT professionals but also all levels of management and representation from throughout the organization (stakeholders) via an IT planning committee.

Planning is one of the most important aspects of any IT implementation project. ITs have a substantial impact on personnel, fiscal concerns, and organizational issues. These impacts must be anticipated, analyzed, and planned for. Effective implementation of ITs in a rural bank can be enhanced if managers take care to deal with anticipated problems before they occur, and are quick to act on problems that do arise.

Most of the literature which speaks to the relationship between planning and information technology agrees on a number of points: planning is a key first step in successful IT implementation; the involvement and expertise of top management is essential to success; the planning process as well as organization personnel must be ready to anticipate and adapt to changes in ITs; and, finally, evaluation of the planning and implementation process is key to facilitating decision-making and future acquisitions.

2.9 Procurement and Information Technology in Rural Banking

IT procurement processes exist, formally or informally, in every rural bank and any financial institution that acquires information technologies. Procurement involves all aspects of IT acquisition: competitive bidding, purchasing equipment and services, and evaluation of implemented systems. Part of the complication of IT procurement in particular is that the acquisition of ITs is not just about the purchase and use of hardware and software, it is also inherently tied to the acquisition of a variety of services, support personnel, intellectual properties, and any items that have either a direct or indirect affect on information or information technologies. The IT procurement process is interdisciplinary and in most circumstances involves staff members from all through the rural bank's IT staff; purchasing, legal, and financial employees, not to mention a number of end users from all departments across the organization and its planning and implementation procedures. This multi-dimensional aspect makes IT procurement especially complex with relation to the rural bank. This complexity, in conjunction with the huge number of available products and services, and the speed with which new products are introduced to the market, makes the area of IT procurement an extremely intricate and volatile process area. Literature surrounding this domain is relatively scarce aside from the many prescriptions and guidelines for actually carrying out the procurement process. Much of what is available speaks primarily to major trends like cost/benefit analysis of IT and specific procurement practices in particular individual banks. Essentially, the procurement of information technology consists of budgeting for ITs and the ultimate acquisition of ITs. The early literature in this area in essence discussed procurement as a set of alternatives for IT acquisition, the first of which is internal information technology appropriation. At it's most fundamental level this means that each individual rural bank must take care of all the budgeting, cost-benefit analysis, IT selection, purchasing, and implementation on its own. The second alternative, known as external, is the contracting out for all or a significant portion of all, IT equipment and services for a given municipality.

Most of this early discussion was based on the need for all rural banks to achieve economies-of-scale with regard to their IT processes. To have an internal procurement process meant that the organization could provide IT services for itself and still achieve a greater cost/benefit ratio than contracting out would allow. In the late 90s only the larger rural banks could afford the luxury of internal procurement. For smaller rural banks the economies of scale were much smaller and they had to contract out to external companies who could provide IT services for them at a substantially lower cost than they could achieve by doing it themselves. Much of this situation changed in the early 2000s with the proliferation of technology that created an environment where most IT processes could be provided internally by the rural banks themselves. Even with this technological boost there still remained a contracting out factor. The hardware had become much more cost effective for a bank to own but in many cases some of the operations (like database and network management) continued to exist beyond the fiscal grasp and expertise level of the bank.

Currently, and in the foreseeable future, contracting out still occurs for the provision of certain IT services. More recent literature with regard to IT procurement discusses the process of acquiring IT equipment and services but it refers mostly to the governmental procurement policy in the country. This discussion provides an overview of the bidding and contracting process which is often defined in statutes and regulations. According to Andersen

and Dawes (which year) this aspect of the procurement process creates special problems for the management of ITs. Most of the procurement regulations require the acceptance of minimum bids for equipment and services which meet proposal guidelines. The procedures are often quite slow and stretch out over a number of planning cycles. In this environment it is difficult to handle system and software upgrades which are an integral part of today's information technologies. To make matters more problematic personnel costs and equipment service costs are often ignored in the process.

As in the earliest stages of information technology procurement of ITs area of cost benefit analysis remains a prominent concern. Many of the problems with IT implementation that rural banks face today are drawn from the history of a strict cost benefit approach to the development of information systems. Over time, the level of concern and frustration that managers have developed with regard to IT acquisitions has grown substantially. Their main consideration has become a question of how IT can best be made to work efficiently and economically, and deliver the expected benefits. This view often comes from unrealistic expectations of technology, ignorance of the systems, and excessive expense. Unfortunately, these issues have taken focus away from other important issues which come into play.

Rural Banks must look on the acquisition of information technologies as an investment decision which necessarily requires careful evaluation of the risks as well as the benefits. As Kraemer and King point out, IT acquisitions entail future costs which go far beyond initial procurement decisions. There must necessarily be a substantial commitment to future upgrades, operating expenses, software and personnel.

Typical cost/benefit analysis of an IT investment does not fully realize the implications of the IT procurement process. IT investments cannot be calculated the same as other capital investments, that is by using internal rates of return or net present values to determine whether to invest in specific systems or not. According to Ward this method only works when the costs and benefits can be accurately predicted over the life-cycle of the system and since the actual life-cycle is extremely hard to determine, it is very difficult to evaluate ITs on a financial basis alone.

In order to effectively evaluate (in an appropriate manner), IT investments in rural banking, it is necessary to secure a more holistic view of the process by taking into account infrastructure investments, personnel investments, and incremental capacities. Part of the problem with quantifying the benefits of ITs lies in the inability to convert the many "intangibles" of information technologies into financial figures. In effect it is really not possible to quantify all of the benefits of IT nor does it make sense to try and force these types of quantitative measures on the unquantifiable.

M.M. Parker et al (1995) in Information Economics provides: an analysis technique specifically for IT which takes into account possible IT applications and then justifies five basic techniques for evaluation. They maintain the traditional cost/benefit analysis and add to it value linking (improvement to performance), value acceleration (improvements in time use), value restructuring (productivity through organizational change), and innovation evaluation (the value of new processes and practices). This approach is one of the more creative of the limited offerings in the literature on this area and provides a better way of interpreting the long-term values of IT for a rural bank.

In order to determine the tangible benefits of ITs to rural banking, they must be broken down into distinct divisions which represent the types of technology categories. M.M Parker et al (1995.) provide three main ways in which IT systems benefits accrue:

1. Substitutive replacing people power with machine power. This approach is generally driven by economic factors with the ultimate goal of improving efficiency.
2. Complementary improving productivity and personnel effectiveness by providing new ways to perform tasks though IT.
3. Innovation by increasing a competitive edge by creating new applications for IT.

In this particular model the authors provide a way of looking at IT acquisitions which provides for a view which is neither purely based on efficiency nor solely on innovation.

Instead they provide a framework where integration between cost/benefit analysis and innovative evaluation is possible depending on organizational needs and directives. On the whole, this particular area has proven itself very resistant to change. Guidelines for IT procurement are still floundering in a traditional approach to budgeting and acquisitions. The most recent procurement act by the Government of Ghana actually addresses the procurement process for all companies in the country. This guide lays out a step by step acquisition process which is based on a standardized evaluation of risks, benefits, and costs. Their proposed process begins with a prioritization of all funding requests from all other agencies in the company in an attempt to maximize the value of the banks scarce resources. This part of the process requires the balancing of any potential benefits against the costs and risks, while at the same time aligning the bank's strategic and tactical goals with any proposed IT investments. A critical factor to this particular guide's approach is the eventual clear evidence of the positive net benefits that the shareholder has garnered for their share invested.

Inherent problems with this process are obvious and intrinsic in IT procurement efforts. The IT acquisition

and management process is reasonable from an ideal view of how the process should function: that is, the delivery of IT systems that operate as intended, within specific time parameters, and in a measurable and cost-effective manner. For overall government efficiency it is desirable that the procurement process achieve economy through the standardization and sharing of systems across agencies. Unfortunately, in practice, the process continually fails to meet these ideal objectives primarily because the realities of IT systems procurement and implementation are not taken into account. As Ward and others have pointed out, the IT acquisition process is risk-averse and demands a high degree of certainty. Both demands are the exact opposite of the reality of IT procurement which is both uncertain and high risk. The typical acquisition process, as illuminated by the federal government's guide to technology investment, calls for the formulation of precise long-term plans and budgets which essentially assume that all systems requirements can be identified and forecasted at the outset. Process models like this one assume that IT hardware and software development are predictable and that there is a high degree of accuracy in long-term budgeting for ITs. Typical acquisition processes do not work well within the complex and long-term life cycles of IT systems. The very nature of information technologies makes traditional acquisition processes ineffective and problematic. Its change rapidly and defy predictions as to costs, development time, and ultimate performance measures.

For authors such as Braithwaite (1996) one of the most crucial aspects in the IT procurement and acquisition process is what he terms "Alternatives Analysis and Feasibility". This part of the process takes on the job of deciding whether or not a future IT acquisition is headed in the right direction and feasible with relation to the bank's goals and directives. For Braithwaite (1996) this requires a full review of the financial situation, system possibilities, existing systems needs, and specific guidelines for use.

Braithwaite (1996) also argues that all IT planning and implementation must be subjected to a "series of feasibility and trade-offs tests that examine each according to technical, operational, and economic factors". A number of important issues arise in an examination of technical feasibility and is it the planned for IT a reliable use of technology? Is it compatible with existing systems? Does it require specialized training or rely on unfamiliar techniques, hardware and software? In the end, IT solutions must be compatible and in line with users skill levels and expertise. It should also be implementable using existing staff and not overly tax their capabilities and time. Ideally, information technologies are supposed to enhance the rural banks effectiveness but not to detract from it. The reality of the situation is that if proposed acquisitions cannot meet certain technical requirements it is more than likely that problems will occur on implementation.

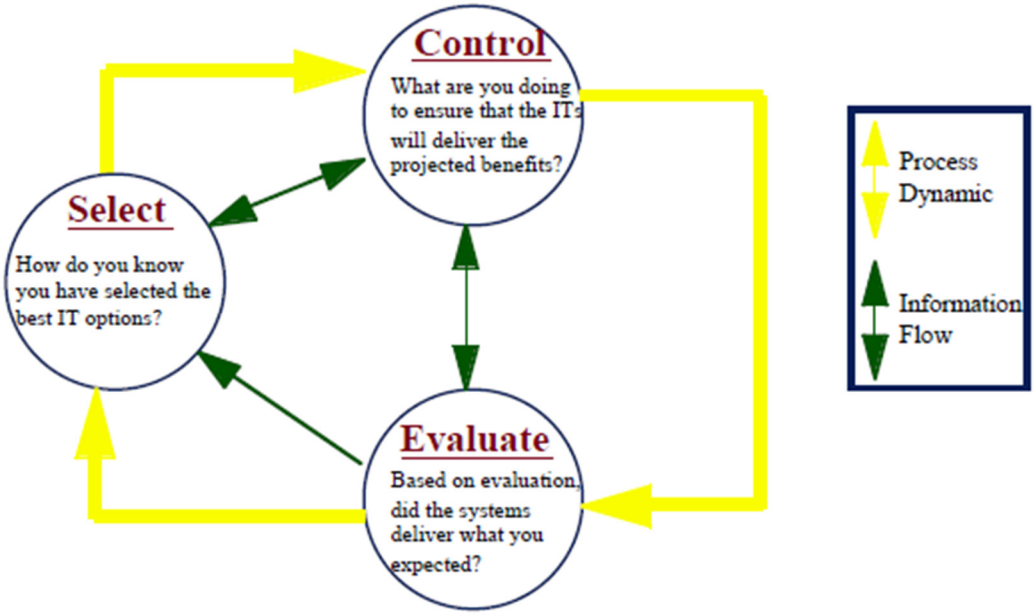
According to Braithwaite (1996), operational feasibility is the most critical but most often overlooked aspect of the procurement process when dealing with the planning, acquisition, and implementation of ITs. Operational feasibility speaks to the attempt to determine how well the predetermined technical alternatives will work within the context of the organization's day-to-day operations and environment. In an ideal situation, implemented ITs will enhance the effectiveness of the bank at the very least it should not detract from, or disrupt existing operations. In order to be feasible in this way, the technologies must be in line with the banks needs and directives. A main part of the difficulty in this area stems from the fact that in many instances operational procedures must be changed to accommodate ITs and in a few cases the fundamental culture of the organization may require some modicum of change. Ideally, these sorts of changes should be addressed earlier on in the planning stages in order to lessen some of the more detrimental impacts (perceived or otherwise) of implementation. In essence, the operational feasibility of any specific information technology affects both the social and working processes of the bank and as such must be treated as a fundamental factor in IT implementation.

Finally, Braithwaite (1996) discusses economic feasibility and specifically places this aspect last to deal with a management predilection toward the pure cost benefit analysis of IT. In his words "Economic feasibility should be considered last or else the probability is high that technological direction could be determined for the wrong reason; that is, low cost."Braithwaite recognizes that funding decisions for IT are usually dependent on the justification of increased revenue, reduced costs, or better services.

Braithwaite further cautions that pure evaluation of costs to benefits does not necessarily provide a full picture of the economic feasibility of any given IT. He proposes that they must be evaluated in terms of the whole work process and only on those IT alternatives deemed technically and operationally feasible. He argues that this is the only way to make sure that the analysis is a true evaluation of all favorable alternatives. Potential benefits should not be masked by unanticipated costs associated with trying to make an unfeasible system work. For any IT implementation to be successful it must be funded and justified by enough benefits across the board to allow for full development and implementation. To achieve this, benefits must be projected for the full "useful" life cycle of the system. As discussed previously, this is quite difficult to do and requires the analysis of all three types of feasibility. One of the earliest recognized problems for IT implementation in local government has been poor IT acquisition and development procedures. "Many rural banks, and particularly those adopting integrated ITs for the first time, are unsure how to go about procuring systems that will really meet their needs." As has always been the case, there is a great deal of difference, with regard to capability, among the range of ITs available for any given solution. Procuring a system which is too limited for the tasks a rural bank wants to utilize generally leads to

immediate upgrade needs. This in turn creates a disruption of the whole process of implementation particularly if a system must be upgraded prior to full systems implementation. The opposite situation can also have detrimental effects. If too much systems capacity is acquired there may be desire to "fill-in" the slack capacity so as not to appear underutilized in evaluation. This may result in the establishment of processes that are not needed by the municipality, but that may eventually become entrenched. In the end it is very important that IT procurement be tied to the development of specific but integrated systems over a particular period of time.

In Braithwaite report, "Evaluating IT Investments: A practical guide", the Office of Information and Regulatory Affairs Information Policy and Technology Branch proposed a process model for IT investments which outlined the major aspects of the IT procurement process, figure 2.1 shows a model of their process.



IT Investment Process Model

Source - General Accounting Office in conjunction with the Office of Information and Regulatory Affairs, Information Policy and Technology Branch. (1995) Evaluating Information Technology Investments: A Practical Guide. Washington, D.C.: Government Printing Office, November. p.12.

In this particular model, three specific processes exist. Select refers to the screening of all possible projects requiring ITs. It also requires an analysis of risks and cost/benefit ratios resulting in the prioritization of projects based on rate of return to risk. The ultimate objective is the determination of the right mix of projects for the organization. The second step in this IT procurement process refers to control of the selected projects. As ITs are acquired for any given project they must be evaluated against projected costs, implementation schedules, and predefined performance measures. As acquisition and implementation take place action may be taken to correct any deficiencies with regard to the ITs and their relationship to the given project.

Finally, the ITs must be evaluated to determine whether or not they met expectations and/or cost to benefit ratios. This step allows for adjustments to the systems and/or their usage in existing or future projects. While this acquisition process model appears to be fairly standard it does speak directly to the implementation of information technologies and it does allow for course correction within the process. Unfortunately, as with a multitude of other available models, it places most of its focus on cost/benefit analysis.

2.10 Implementation and Information Technology in Rural Banking

Much of the literature available in the area of IT development and deployment recognizes that the relationship that exists between ITs and rural banking demands process types that specifically address the special implications of the relationship. To this end, Walton (1989) argues that there are five specific aspects that must be part of any IT development and deployment process they are: priority attention and commitment of resources; the process must be an extended one; the process must be inclusive; rural bank's values must be an integral part of the guiding factors; and technological and the bank's aspects must be develop in conjunction and parallel with the IT requirements. The first aspect provided by Walton (1989) has become a common theme. This supports the view that the IT development and deployment process is crucial to the effectiveness of the rural banks and as such it warrants the direct attention and leadership of top management. Walton (1989) adds that this kind of leadership provides a distinctive dimension to the process and that is, the critical importance of commitment of the banks resources not just fiscal resources, but those that are educational and personnel related as well.

A second crucial factor is the life cycle of the Information Technology deployment and development

process. The process must extend beyond the development and implementation of IT in the rural banks and it must ultimately continue through the evaluation and adjustment stages, as well. In the volatile area of IT, conditions change throughout the development and use of information systems. In addition to being extensive the implementation process must also be inclusive, as the wide-ranging impact of IT on a rural bank demands the involvement and support of individuals and departments across the entire company.

The two aspects which Walton (1989) discussed is an ongoing developmental IT implementation process and must be given all the necessary attention.

. The process requires that a framework exist for its development. To be really effective this necessitates the infusion of the banks goals and missions into the process at the very beginning or planning stages. IT has such an impact on bank's outcomes that a clear understanding of the desired organizational effects of IT is crucial. As banks goals and directives are not static, neither are the requirements for ITs. As the bank develops its IT needs will change the relationship between the rural bank and ITs is two-way and over time the two must develop consistently intertwined.

Walton's (1989) view of IT implementation is so important because of it's recognition of the importance of integrating the bank's goals and garnering support at a number of different levels. A good portion of the ICT literature views IT implementation with an internal focus that overrides all others. In other words the goals of IT are viewed as the primary goals for future IT development and implementation. Most of the authors who have delved into the area of IT implementation agree that it is intricately intertwined with the organizational design and culture. Hansen (1995) recognizes the alignment of IT development with the bank's goals as desirable after the IT implementation goals have been met.

Markus (1983) provides a view of IT implementation which proposes that resistance is a key factor in achieving effectiveness in that it "guides the behavior and influences the actions taken by managers and IT developers who are concerned with the implementation of ITs." This argument builds on the view that top management support and user involvement is key to process effectiveness but from the unique standpoint that it aids in the avoidance of resistance. In addition to organizational support, are the issues of well-designed systems that are technically sound and "user friendly". The arguments relating to resistance and IT implementation suggest that there are 3 types of resistance. First, individuals or groups may resist based on internal factors specific to that person or subunit. Secondly, the resistance may be technically oriented, based on factors inherent in the ITs themselves or the complete system being implemented. These two types of resistance to implementation are divergent in that the first sees individual and group behavior as internally determined and the second sees the same behavior as being determined environmentally or by the technologies themselves. It is common in the process of implementation to adhere to both of these influences simultaneously, that behavior is determined both internally and externally. Markus and Ginzberg (1983) both describe this as the tendency for people to resist regardless of the system but all things being equal they are less likely to resist ITs that are well designed.

The third type of resistance which is seen as a primary impact on IT implementation is the argument that individuals and groups resist ITs because of the interaction of personal characteristics with those of the IT systems. The key here is "interaction". Keen (1980) gives an example where he argues that IT systems which centralize control are resisted in rural banks that have decentralized authority structures. It is important to note that in the IT implementation literature resistance is defined as behaviors that are intended to prevent the effective implementation of ITs. However, resistance may also be applied to behaviors which do not manifest these intentions. Markus(1983) makes the distinction by suggesting that when a person's use or interaction with ITs is not critical to overall system operation then the individual's choice not to use the system cannot really be considered resistance. Instead this behavior may be an indication of other factors such as lack of training, personal fear of IT, or ignorance of the system.

Some of the more recent literature in the area of IT implementation discusses the impact of company culture, which was all but absent from most of the early literature.

Organizational culture has a variety of meanings in the context of IT. Cooper (1994) defines it in his article "The Inertial Impact of Culture on IT Implementation" as "the social or normative glue that holds an organization together and expresses the values or social ideals and beliefs which organization members come to share". One of the more important ideas provided with regard to organizational culture is that changes which are most significant in an organization will breed resistance and ultimately fail if they are not accompanied by cultural changes. Relationships to this discussion can be seen in Schein's analysis that groups in organizations typically build their culture around their underlying technologies. Any adjustment to power (perceptions of power, work habits, or status) which may accompany IT implementation may violate the shared meanings and values of the group bringing about cultural based resistance. Although the issue of culture has been relatively absent from IT implementation literature there are a number of indications that it is quite important to the process. In essence, different cultures require different kinds of information and technologies since they process information differently and they play an important role in user satisfaction of ITs. According to Cooper (1994) the differences inherent in organization cultures can lead to resistance of IT implementation which can in turn increase the likelihood of failed

implementation.

2.11 Ghanaian Rural banking sector: IT challenges and opportunities

The Ghanaian rural banking sector is at an exciting point in its evolution. The opportunities to enter new business and new markets and to deliver higher levels of customer service are immense. As the rural banks position themselves as that of a financial service provider, banking business is getting redefined. Technology is unsettling the earlier business processes and customer behaviour is undergoing a change. These have enhanced the focus of competition. Competitive advantage can be achieved by harnessing the potential of the employees by creating a positive work culture and enlisting the support of all the employees to achieve the organisational goals.

RCBs have adopted better operational strategies and have upgraded their skills. They have withstood the initial challenges and have become more adaptive to the changing environment. In the complex and fast changing environment, the only sustainable competitive advantage for RCBs is to give the customer an optimum blend of technology and traditional service.

The Ghanaian rural banking sector is going through major changes as a consequence of economic reforms. The changes affect the ownership pattern of banks, availability of funds, the cost of funds as well as opportunities to earn, range of services (fee based and fund based), and management of priority sector lending. The new rules of competition require recognition of the importance of consumers and the necessity to address the needs through the innovative products supported by new technology. As a consequence of competition, the managerial challenges include market segmentation, product positioning, innovative delivery channels and cross selling. The RCBs may have to reorient their resources in the form of reorganized branch networks, reduced manpower, dramatic reduction in establishment cost, honing the skills of the staff, and innovative ways of attracting talented managerial pool. The Government of Ghana and ARB Apex Bank of Ghana on their part would strengthen the existing norms in terms of governing and directing the functioning of these RCBs. (Osei-Bonsu, 2010)

The biggest opportunity for the Ghanaian rural banking system today is the Ghanaian consumer. Demographic shifts in terms of income levels and cultural shifts in terms of lifestyle aspirations are changing the profile of the Ghanaian consumer (Acquah, 2005). This is and will be a key driver of economic growth going forward. The Ghanaian rural banking sector is at an exciting point in its evolution. The opportunities are immense – to enter new businesses and new markets, to develop new ways of working, to improve efficiency, and to deliver higher levels of customer service.

With gradual deregulations, rural banks are now exposed to different types of risks. In view of the dynamic nature of the financial market, rural banks face various market risks like interest rate risk, liquidity risk, exchange risk, etc. In respect of lending, they face credit risk which includes default risk and portfolio risk. Besides, rural banks also face other risks like reputational risk and operational risk. Therefore, a robust risk management system is necessary.

As the Ghanaian rural banks move gradually beyond universal banking and position themselves as financial service providers, rural banking business is getting redefined. Technology is unsettling the earlier business process and the customer's behaviour is undergoing a change. These have enhanced the forces of competition. To survive under these conditions, the public sector banks will have to undertake business process reengineering, redefine their strategy and HR strategies to the overall business strategy. The technology will become a key driver of a financial business.

In the new business environment, rural banks have to be flexible enough to accommodate changes and at the same time have the necessary stability to retain the core competencies to deal with change. Electronic banking services like e-zwich have spread quickly in recent years. The rural banks need to develop robust internal control systems, management information systems, and early warning triggers. Four trends are fundamentally altering the banking industry: consolidation, globalization of operations, and development of new. (Amoako, 2012)

On account of introduction of certain advanced technology, there would also be a strong case for recruiting fresh talent with attractive pay and perquisites. However, an organisation cannot afford to go on inducting talent without reviewing its existing manpower and how worthwhile it is to continue with some of them in the changed scenario. Even after equipping people with the latest knowledge, the results will not start flowing unless they are empowered to deliver the vision of the organization. The vision of the organisation should be exciting to the employees and a source to unleash their potential.

Some of the challenges that rural banks are facing today are: changing needs of the customers, coping with regulatory reforms, thinning spread, maintaining high quality assets, management of impaired assets, keeping pace with technology upgradations, sustaining healthy bottom lines and increasing shareholder value.

The Ghanaian rural banking sector is faced with multiple and concurrent challenges such as increased competition, rising customer expectations and diminishing customer loyalty.

The expectations from the consumers have been growing. Broadly, these expectations are swift service with minimal response time, efficient service delivery, tailor-made and value added products to suit specific needs, hassle free procedures and minimum transaction costs, and pleasant and personalized service. (Amoako, 2012)

(Abor, J. 2005) described that the rural banking sector is entering into the new world and existing developments in rural banking sector are changing the face of RCBs. Technology has revolutionized the rural banking industry in a big way and banks all around the world are investing heavily in technology.

Technology has also helped rural banks to improve their product's delivery and profitability. When rural banks depend on technology for their day-to-day business, the complexity and risks of technology has to be understood and sufficient backup plan put in place to ensure continued customer service.

In addition, as more technology based services are provided, the demand from customers will keep increasing and rural banks would thereby end up in a technology war. In order to win this war, investments in technology are going to increase and proper utilisation of these investments is essential for rural banks to ensure that the systems deployed are fully integrated with their operations. Further, a significant amount of back office processing can be centralised, relieving the branch staff for more customer interactions. This is expected to bring in large-scale economies of operations and better customer services.

Technology has been noted as a revolutionary agent, it will not be a cure for all inefficiencies. The main area of awareness for banks is going to be the re-skilling of the workforce, both in technology and non-technology areas. One of the major areas where re-skilling is needed is in the area of customer service and customer focus; how to manage customer expectation, his feedback; how to attract new profitable customers; how to package products and services to meet customer needs, create a hygienic branch environment and other contact points.

Another major need is to ensure consistent customer experience, irrespective of the channel used for interaction with him. Added to this is the security across all channels and distribution points for customer information and transactions. While technology may not be a cure-all, it is definitely an enabler. The tool has to be used efficiently and effectively to originate maximum benefits. This will definitely be a differentiator to offer products and services.

The Ghanaian rural Banking industry has come a long way from those early days. The journey ahead, promises to be exciting and eventful. Developments and changes in the Ghanaian economy have created an entirely new set of challenges in front of RCBs.

The application areas for the newer technology in rural banks can be by and large divided in two categories namely customer centered (Technology) applications and high end (Functionality) applications. Customer centered application includes the solutions like internet banking, anywhere branch banking, mobile banking, core banking solutions, whereas high end technology encompasses risk management solutions, straight through processing (STP), credit monitoring systems for the data collections etc.

Money Laundering and Fraud is increasingly becoming a matter of concern for financial institutions including banks and investment houses all over the world, given the severe penalties imposed by the regulatory authorities for non-compliance of Anti-Money Laundering (AML) reporting requirements. With several co-operative banks and financial institutions collapsing due to mismanagement and fraudulent activities, a solution is needed that can serve as an early warning system which will help to initiate the necessary preventive steps and ensure that a mechanism is in place to address these issues.

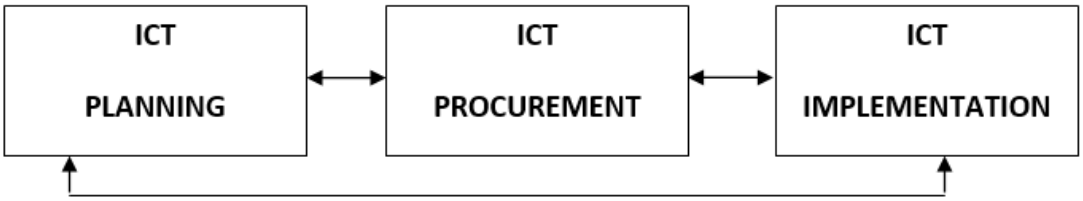
The rural banks as well as customers have a serious concern about the security of remote access to client account that is the biggest challenge. Banking through the Internet is increasingly becoming necessary rather than innovative tool and with consumer demand, banks have to upgrade and constantly think of new innovative customized packages and services to remain competitive (Amoako, 2012). Implementation of SET, the standard for Secure Electronic Transaction on the Internet and its wide spread adoption including security measures like encryption, digital authentication and verification of online identity increases the consumer's confidence. Consumers are increasingly looking for services that they can access from a single entry point.

(Osei-Bonsu, 2010) discussed the issue that the transaction through technology channels cost much less to the RCBs than the customers reaching the bank and doing the transactions. In the last decade rural banks have invested heavily in the technology. In the use of information technology, traditional banks, the new private and foreign sector banks have taken lead over the rural and community banks. Today public sector banks are also investing heavily in technology to compete with the new private and foreign sector banks. There are different technology issues and challenges such as choice of right channel, justification of IT investment in terms of ROI (Rate of Interest), e-governance, customer relationship management, security concerns, penetration of IT in rural areas etc. Rural Banks are required to address these issues and challenges effectively to stay in business and grow.

3.0 Methodology

3.1 Procedures and Sample

For the purpose of this study the researcher did categorized the whole MCA Rural Bank computerization and interconnectivity project implementation process into a single system model. This process was viewed as a combination of three integral parts, each of which involves a separate set of internal, external factors and processes. Each of these integral parts of the computerization process, i.e planning, procurement and implementation is necessary for the successful implementation of the computerized project.



ICT Development And Deployment

As seen in this representation, planning has a direct impact on the procurement process, and vice-versa whiles procurement and acquisition capabilities are also directly related to planning efforts. Procurement impacts implementation that has a direct impact on both the procurement and planning efforts.

This study did discuss the fundamental issues of computerization project implementation in the MCA Rural Banks and Interconnectivity project. Basically the diverse and varied challenging issues that exist across the multiple levels of the implementation process were also addressed. The multiplicity in the implementation process did made the entire process very cumbersome with lots of issues. As a result of the nature of the MCA Computerization and interconnectivity implementation process, each set of the challenging issues were viewed in layers relative to the distinct stages in the whole process.

Generally, the computerization planning issues are different from its procurement issues and yet each individual factor is inherently important to the whole process and must be viewed ultimately in that context.

This research addresses each of the stages of the process into a separate part to better identify the challenging issues, which are specific to that stage. It was noted that until each of the distinct piece of the process is viewed as a separate entity, it is impossible to figure out where the whole process might ultimately break down and which particular issue or set of issues might be to blame. During the MCA computerization and interconnectivity project implementation process as described in this research, planning was noted as the first stage. The planning process provides the fundamental steps from which the rest of the computerization implementation process continues. From the planning stage the process moves on to procurement or acquisition processes. This is the initial stages of the process where strategies are mapped out in the planning stage thereby begin to take shape. Once all of the necessary facets of the project plan have been acquired, the plan can be formalized and implemented. Each of these stages are intimately related to the others ie procurement and implementation, failure to plan adequately impacts both procurement and implementation. Conversely, a breakdown in implementation may inform future planning efforts or require review and revisement of the original plan. Without the procurement portion of the process, implementation would be impossible. The acquisition of the proper equipment, technologies and budgeting for future acquisitions are integral to effective implementation of the MCA computerization project. Each stage of the implementation process demands careful consideration and foresight as they are all symbiotically related. Generally, failure to plan well for this project will ultimately result in a plan to fail.

Data were obtained from Audited Report that includes profit and loss account, balance sheet, portfolio reports and manual tariffs of Odotobri and Amanano Rural Bank Limited respectively.

The questionnaires were delivered by hand to the staff, customers, management, system administrators and managers of Amanano Rural Bank and Odotobri Rural Bank respectively. The study took place at Nyinahin, Bibiani, Jacobu, Obuasi, Bekwai and Kumasi. It covered all the agencies and head offices of both banks under study

3.2 Questionnaire

The questionnaire comprised of background questions about gender, age, education, knowledge in information technology and their knowledge in banking applications. Structured questions and some dichotomous question were asked to collect the information from the respondents. The same context of questions was given to all interviewees and they received exactly the same interview stimulus. Questions were very specific with a fixed range of answers. The structured questionnaire had multiple-choice questions in which the researcher provided a choice of answers and respondents were asked to select one or more of the alternatives, and dichotomous questions that had only two response alternatives, yes or no. The researcher also used 'Likert Scale' (considered on 1-5 points scale) to measure the respondents' perceptions based on few statements to perceive the effect of planning and the impact of the computerization project on their banking operations. The points of the scale indicate the degree of agree or disagree level of the performance and impact of the system on their banking operations as they started using the T24 banking application **'1'** represents the lowest level of satisfaction or high disagreement, whereas '**5'** represents the highest level of satisfaction or high agreement.

4.0 Results

System administrators, Managers and staff of Odotobri and Amanano Rural Bank Limited were surveyed for their

response to a series of the challenges in the computerization project and also the extent these challenges have affected the computerization project and the operations of the rural banks. Of those polled 6 were managers, 3 were system administrators, and 35 were staff. Out of the 70 surveyed 44 responded, a 62.86% return rate.

4.1 Categorization of the Challenges from the Computerization of Amanano and Odotobri Rural Bank

All the challenges in the computerization project were initially viewed within either management or organization processes. It became obvious, as the literature review and interviews progressed, that the originally conceived categorization of the challenges were inadequate. Extensive representations of the influences from the rural banks based on the challenges were obviously necessary. This involves challenges with regards to Leadership, Managerial Process, Organization, Technical and Personnel. Leadership challenges reflect those issues that require the commitment, interaction, direction of General Managers and Board of Directors in the rural banks, such as interdepartmental coordination, organizational support, individual support, timeframes and scheduling.

These challenging areas reflect the premise that organizational change occurs from Board of Directors to the ensuring of management involvement in the computerization project implementation. In a similar vein, those challenges revealed in the management processes are in relation to General Managers to be specific and their role in the functional operations of the rural banks, as in budgeting, personnel management, and general management: In essence, any challenge which require specific attention or directives from a General Manager.

The challenges characterized as organizational environment are broader, addressing factors, which are less tangible and more difficult to define, such as organizational culture, change that comes as a result of the computerization, Internal or External Politics, and behavior. These are essentially challenges that affect or may be affected by environmental factors, both external and internal.

Technical systems issues are primarily those related to the impact the computerization have on rural banks and their staff based on their specific nature. These challenges include hardware and software considerations as well as the compatibility of the data capturing templates presented to the rural banks from the data center.

Additionally, challenges with regards to personnel are those factors surrounding each individual within the rural banks, such as individual expertise levels, staffing levels, and resistance to change. These challenges are significantly impacted by the human conditions related to interactions, personal feelings and perceptions.

Interdepartmental Coordination

The first of the background questions dealt with the level of interdepartmental coordination and the rate at which each of the departments involved themselves during the computerization project implementation. Content analysis of the responses indicates 27.27% of the respondent agreed there was interdepartmental involvement in the project whiles 72.73% believe there was nothing like interdepartmental coordination in the execution of the project. The high mean value suggested that most of the departmental heads did not understand the project to enable them engage their subordinates to furnish the IT department with the necessary data. Additionally it also creates the impression that the IT departments are solely responsible for the computerization project.

Organizational Support

Successful and effective implementation of computerization project relies on the ability of the rural banks to change and adapt in order to exploit the uses of system. The study reveals that only 18.18% of total respondents agree and 81.82% totally disagree there was an organizational support. This suggests that the rural banks did not have any predilection towards supporting strategic vision and the impression created was the computerization project was imposed on the banks.

Leadership

This leadership challenge refers to the support of key individuals like top management within the rural banks setup who were either in favour or against the computerization project. The data obtained from the study established the fact that only 34.09% of the respondent saw the involvement of top management members like the credit manager, IT Manager, Operations manager, head of finance, microfinance manager. In the interviews it was also confirmed that with the exception of the IT Manager and the system administrators all other top management members did not take keen interest in the computerization project. This therefore delayed the progress of the project.

4.2 ANALYSIS OF MANAGEMENT PROCESS CHALLENGES

Strategic/Formal plan

This part of the response was to find out whether there was a strategic plan put in place for the project which every computerization project must have serving as a roadmap for a successful implementation. Majority of the respondents (79.54%) said there was no strategic or formal planning of the computerization project whiles 66.6% of managers who are the decision makers within both banks also confirmed it. Since there was no formal or strategic plan for the computerization project, things were not done orderly.

Fiscal/Budgeting

Computerization of the rural banks is expensive at a number of levels during the implementation process. The project requires fiscal concerns that define and measure operation costs, investment cost and also possible or

achieved benefits of the computerization project. In the interview the notion created was that all equipment were going to be procured by the MCA under the auspices of the Ghana government, therefore preventing the banks from budgeting for the project. Meaning the rural banks did not budget for the computerization project. The interview further reveals that the purchase of the equipment was done as when the need arises and also upon a requisition from the IT department.

Lack of a Planning Model

77.28% of the respondents agreed there was no planning models for the project causing staff and management involve in the project to be working in an unorganized manner.

In an interview with the head of data center, it was revealed that the multi-company multi-book system been run at the data center was the first of its kind. This means the consultants hired for the computerization project implementation could not use any model but rather implement the project and correct the system when there are challenges. The data center manager also stated that the kind of system being run in the rural banks is the first of its kind in the world, therefore making it difficult for one to pick a model that works exactly as the one the rural banks in Ghana are trying to implement.

Organizational Directives

Interview with some of the managers revealed that the missions, objectives and plans that their banks possess for the implementation of the computerization project did not exist. Since these organizational directives were not in place, they were finding it difficult to be strategic and having a well define activities to facilitate the effectiveness of the computerization project. This eventually has affected the effectiveness and efficiency of the whole implementation process.

Written Procedures/Guidelines

Written procedures or guidelines also refer to the mandate give to other parties outside or within the company who the rural banks think they can engage their services for the smooth implementation of the project.

The interview disclosed that Apex bank as part of the computerization project did contracted some consultants like Inlak, Global solutions. On the other hand the rural banks did not engaged the services of consultants for the training and capturing of their data which apex bank have been advising them to do.

4.3 ANALYSIS OF CHALLENGES WITH REGARDS TO PERSONNEL OF ODOTOBRI AND AMANANO RURAL BANK

Organizational IT Expertise

This was to find out how technologically savvy the rural banks. In an attempt to ascertain their organizational IT expertise level and how progressive in it nature the rural banks may be, it was revealed that only 15.9% of the respondents were technologically informed. It clearly shows that they did not have well focus resources to enhance this computerization project and also to ensure their cutting edge in this modern day technological development in their banking operations. It shows they did not have information technology embedded in their organizational culture.

Individual IT Expertise

This challenge of the lack of individual IT expertise in both banks speaks to how technologically savvy each of the staff within the rural banking setup are suppose to be. It is typical for a rural bank to employ individuals with a very diverse range of IT competence. Interestingly the result of the data reveals that though the rural banks did not employ staff with diverse range of IT knowledge, they also have staff who are unwilling and do not have the desire to learn more about technology and how to even use simple office applications. Some of them too were resisting to adapting to new technologies the computerization project is bringing.

Internal Leadership

In an attempt to find out the various levels of internal leadership involvement within the rural banks with regard to the computerization project implementation. It was once again observed through the interview that not everyone in the workplace is ready or willing to become part of a technologically based workforce. It was the duty of leadership from managers and co-workers to help enhance the implementation process by getting their subordinate involve. Managers failed to promote the implementation process by refusing to get themselves involve in the training and also helping to prevent the resistance to the change the computerization project was bringing to the rural banks.

Training

The study reveals that the two weeks training for the T24 banking application was woefully inadequate, since that was the first time all the staff were coming into contact with a banking application and T24 to be precise. It was observed that the external consultants who were hired by the Apex Bank for the training had little or no knowledge in banking operations thereby impeding on their delivery during the training sections. This lack of quality training has acted as a powerful restrain to the effective implementation of the computerization project.

Resistance to Change

Resistant to the change the computerization is bringing to the rural banks was seen as a human resources challenge.

It was observe in the interviews that part of the resistance is couched in fear: fear of the computerization project; fear of being displaced by computerization project as result of the automation of all the functional areas of their operations; and fear of the unfamiliar things in the T24 Banking application.
Most of the staff resisted the computerization project implementation because they thought that was also an avenue for the General Managers with the ultimate powers to make purchasing decisions to amass wealth.

4.4 ANALYSIS OF TECHNICAL SYSTEM CHALLENGES

In an interview with the head of the data center and system administrators the following technical system challenges were revealed:

Data Preparation and Migration Challenges

- There was a submission of incomplete customer data, unbalance books and wrong account balances to the data center delay the go-live process.
- Wrong classification of accounts into savings, current and other type of products by the rural banks was a great challenge in the computerization project.
- There was also the late submission of the data for upload during the go-live weekend.
- There was also a late submission of loans and fixed deposits information for upload.
- The delay and improper scanning of mandate cards for upload also impeded on the upload of the data.
- Most staff involve in the capturing of the data on the excel template have little or no knowledge in the area thereby their activity created lot of mistakes in the final data for submission.
- There the difficult of updating the excel templates for upload as a result of their low level of computer appreciation.
- Dormant accounts were not properly tagged during data submission.

Challenges Encounter: Wide Area Network and VSAT Bandwidth

- During the initial implementation of the project some sites of both banks did experience high latency and pack loss during business hours that affect the daily balances of the banks.
- The high latency at the data center resulted in slowness in accessing the T24 banking application when the weather gets cloudy.
- It was observed that some agencies require more IP addresses than what was initially allocated to them due to increase in staff strength. This shortage of the IP's made most of the staff redundant.
- It was observed once again that some sites of Amanano and Odotobri rural banks were using unclean and unstable power at their sites causing the WAN modems to fail resulting in loss of connectivity.
- There was also loss of communication between web servers from Amanano and Odotobri rural banks to the database server at the data center
- The power fluctuations have also caused failure of some components on the infrastructure, such as server disks, storage disks and power supply unit.
- There was also an intermittent database file corruption on one of the servers at the data center. Resolution of such challenges also prolongs the running of the close of business activity thereby affecting banking operations the following day.

T24 software challenges

- Slowness in accessing the T24 system during business hours when posting of transactions (inputting/authorizing), retrieval of BSD reports and other enquires and retrieval of customer mandate (image).
- Delay in COB processing due to the large volumes of transactions and account to be processed. This affected the opening of the system the next working day.
- There was non-completion of the BSD reports.
- The data center did notice Most RCB's were unable to work within the allocated 12hours even when the system is very stable.
- There were also loan and fixed deposit booking and redemption challenges. Solutions for this kind of challenges were not forth coming from Temenos who offers technical support to the management of the software. Loans that were terminated before schedule reverses all the previous interest paid by the customer to his account. This thereby causes huge financial loss to the company. Interest on overdraft was suppose to be charged daily but the system charges the customer on a monthly basis therefore compelling the customer to pay more than the agreed amount in the contract. This issue sometimes leads to threat from customer to close their accounts with the banks.
- There was also lack of proper understanding of the workings of the T24 especially report interpretation and generation. This sometimes led to poor preparation of monthly returns.
- Tariff manual for interest, commissions and other charges on the system submitted to the data center were wrong leading to income leakages or charges above the normal rates.

- There were issues on GL differences and unassigned line values due to wrong postings and unbalanced batches during data capturing.
- Odotobri rural bank on one occasion did not inform the data center of their banking activities on Saturdays. This lead to non-availability of the system.
- There were numerous times when both banks have to close very late leading to late opening of the systems on Saturdays. Even though the system is suppose to be accessed from 9am on Saturdays.
- There were challenges with customer statement printing. Both banks were unable to print customer statements on preprinted forms due to some network challenges. This issue is still pending thereby preventing customers from requestion for their statements.
- There was Non-Authorization of transactions due to some system problems. Therefore affecting account balances and the statement of those accounts involved.
- Some users were found of using GL accounts which did not exist during transaction inputting. This lead to automatic creation of accounts with title "Record Automatically Generated". Inter agency transactions also created inter-agency account for the very first transaction, if it was not created during system setup. The counter side of all inter-agency transactions was routed through these accounts. This issue eventually created a lot of GL differences.
- There were other security breaches the data center did experience as a result of some inter-bank transactions between some banks due to the same old account numbers being used at these banks.

Antivirus Challenges

- Both banks did not switch on their servers and some PCs on daily basis for update. This affected the synchronization with the current update of the antivirus server at the data center.
- The personal laptops connected to the network for antivirus updates occasionally show at the data center as machines that are out of synchronization with the current signature file update.
- There was frequent formatting of servers by system administrators that require fresh installation and updates increasing the work at the data center.

Challenges at the Call center and helpdesk operations

- The use of direct lines limited the free transfer of calls within the center. Also banks always demand that they get response to their issues logged on phone. This usually led to the congestion on the phone lines though other calls may come through but the lines are always engaged**.**

4.5 ANALYSIS OF ORGANIZATIONAL ENVIRONMENTAL CHALLENGES

Organizational Culture

Though organizational culture is hard to explain because it mainly a perception; however for the computerization project to be effective the right kind of culture or environment within the rural banking setup is required. But the interview reveals that the rural banks did not have consistent common grounds between individuals and the new system within their establishment. This is also a clear indication of the internal politics affecting the computerization project.

Politics, Internal/External Politics

Political challenges have been inherent in the rural banking activities and the computerization project implementation is no different as observed in the interview. Though technological activities in general are political by nature i.e. privacy, security, confidentiality and collection of data to the data center. But it is incumbent on the management and system administrators to recognize and address the political ramifications within the rural banks and also improves on the relationship between their partners APEX Bank. Some of the internal control officials with the rural banks were of the opinion that it was the internal politics that has affected the effectiveness and efficiency of the computerization project.

4.6 THE BENEFITS OF THE COMPUTERIZATION PROJECT TO AMANANO AND ODOTOBRI RURAL BANK

Impact Of Computerization On the Profit of Amanano rural bank

The result of the study as shown in the digram clearly shows that the growth rate from 2008 when they were operating in the manual environment was 39.529 % in 2008, whiles from 2009 to 2010 it dropped to -1.63. statistics from 2010 to 2011 when amanano started the full utilization of the T24 Banking application in their operation, the growth rate increases tremendously to 23.01% with a profit to be transferred into income supplys of GH¢**514, 285.00.** This profit chuck by Amanano has been the best ever in the history of the company since it's establishment in 1983.

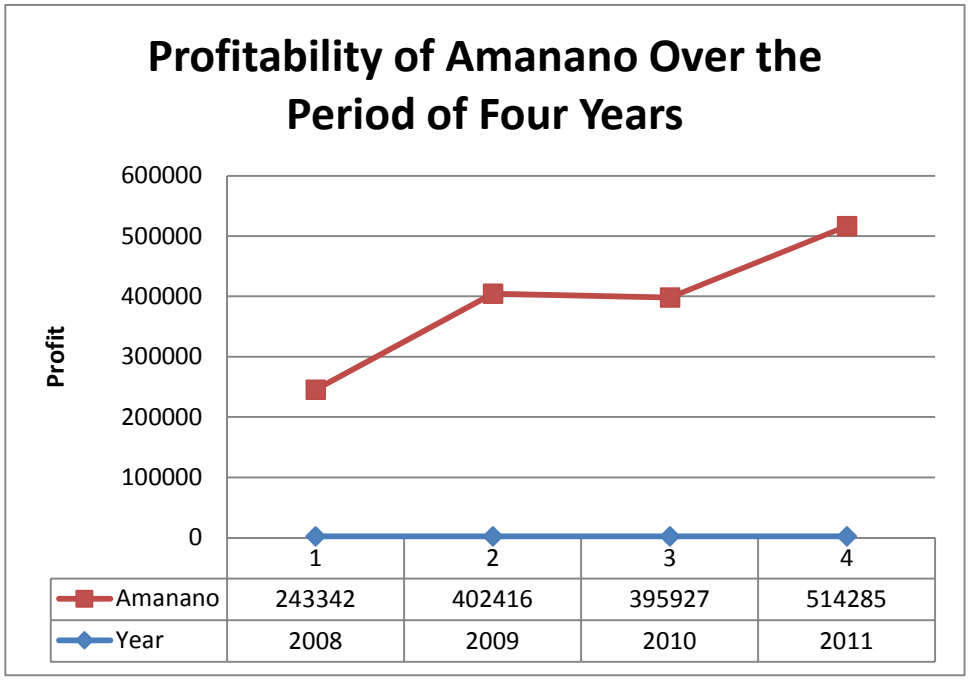
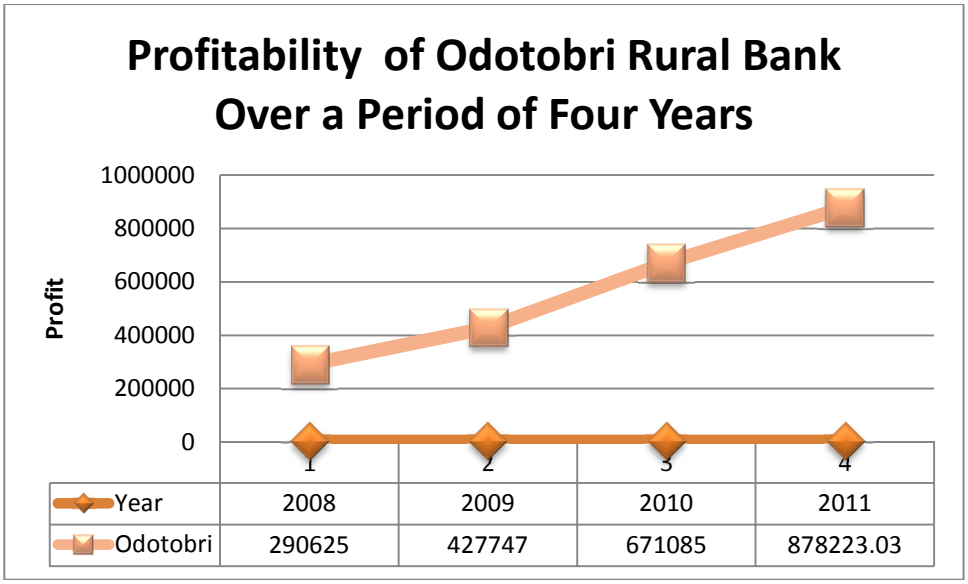


Figure 3.0 Field Work, 2012: impact of computerization on the Profit of Amanano rural bank

Impact Of Computerization On Profit Of Odotobri Rural Bank



Field Work, 2012: impact of computerization on the Profit of Odotobri rural bank

In 2011 when odotobri rural bank commenced the utilizaiton of the T24 banking application, their profit has increae from GH¢ 671,085.00 to GH¢ 878,223.00 this corresponds with a growth rate of 23.58%. This confirms the great impact the MCA computerization project is having on their profitability. Though the profit of the bank has increased tremendously as shown in the diagram, but the high cost of installation and the utilization of other services from the data center have also taken a chunk of the profit. If not so, this additional cost could have also add up to the profit they have been able to make this year

During the interview section with some internal auditors of both banks, it was clearly shown that the computerization has prevented income leakages that were very rampant in the manual environment**.** They stated further that understatement of interest charges has gradually become a thing of the past since for now all such charges i.e commission on Turn over (COT), service charges and interest on loans are now automated. All this factors have contributed in the tremendous increase in the profitable of the bank. There has also been a drastic reduction in the suppression of cash that is one of the commonly noted fraudulent activities in the rural banks.

The computerization project has also reduce the turnaround time of customers at most of the transactional hours. This happens only when the weather is not cloudy and during times when the system is very active and runing .

Though customer management has been improved as indicated in the study but retrieval of customer data is most of the time a challenge as a during cloudy weather which causes the system to be very slow.

The study has revealed that 84.09% of respondents from both banks believe the computerizaiton of their banks has improve on the efficiency and effectiveness of their operations. This is clear indication of the profit that was made at the end of the year which also shows a great impact of the computerization project on their dialy activities.

5.0 Conclusions and Recommendation

Conclusion

The importance of the computerization project to the rural banks is undeniable. Within the past one year awareness and usage of computers have increased dramatically. The computerization of the rural banks has the capacity to change their mode of operations in the most fundamental ways. Each and every banker within the rural banking establishment has been impacted by some form of technological innovations the MCA computerization project has brought to their organization.

Additionally, the computerization project is gradually changing the way management is approaching the development of their operations and service deliveries.

Finally, the computerization of the banks has provided new ways of approaching the relationships between staff and customers they serve. Considering the crucial role the rural banks play in our daily lives, the significance of the computerization project and other impacts must not be ignored.

From our research, we conclude that the major challenges in the MCA rural banks computerization and interconnectivity project are Lack of strategic planning for the project which forms the fulcrum of the leadership challenges. However it remains a fact that there are other challenges like Managerial process challenges,

organizational environmental challenges, challenges with regards to personnel and technical system challenges that any rural bank and financial institution must expect in the computerizing it's establishment. Apex Bank, Board of director, management and staff are to deal with these challenges to prevent the failure of the project.

Research questions and responses:

I. **What were the challenges (if any) that confront the rural banks computerization and interconnectivity project?**
The challenges confronting the rural banks computerization project implementation were Leadership challenges, Managerial process challenges, organizational environmental challenges, challenges with regards to personnel and technical system challenges having direct impact on the planning processes of the MCA rural banks computerization and interconnectivity project. These challenges have impeded on the progress of the project and have also affected banking operations. It is a clear indication of what the rural banks are experiencing now.

II. **How have these challenges affected banking operations at both the Amanano and Odotobri rural banks respectively?**
These challenges have increase the turnaround time of the customers as a result of the slowness in accessing the T24 banking application during when the weather cloudy. It has also affected the profitability of the rural banks as a result of the high cost of bills from the data center in connection with the utilization of their services, i.e cost of maintaining the infrastructure, bandwidth, electricity bills and paying of data center staff.

III. **What systems and remedies should the Apex Bank put in place to checkmate such challenges in the future?**
- The data center must organize intensive refresher training on T24 banking application for all categories of staff especially the Managers and IT personnel. This will equip them to gain better understanding of the core functionalities of the eMerge T24 banking application to prevent such challenges in the near future. The main areas of concern should be reporting, changing of interest rates, management of loans and deposits, enquiries.
- Apex Bank must train the system administrators on active directory, internet configuration, antivirus and the statement printer setup so that systems can run from a centralized location managed effectively.
- Apex Bank must sensitize the Auditors who are in charge of internal control on the security of the network and its components. This will also prevent staff from manipulating the system to their advantage
- Apex bank must organize sensitization workshop for all front line staff at the rural banks to equip them with adequate knowledge on the project and how to manage customer expectations during system downtimes.
- The apex bank must improve on the communication between the data center helpdesk and the rural banks in case the system goes down.
- They must increase the user license in the systems to enable all users uninterrupted access to overcome the challenge of insufficient User license.
- Complains to the data center must be handled quickly and effectively.

Recommendations

1. Strategic planning for the computerization project is an important key to the effectiveness of the whole implementation process. Rural banks which do not make use of a strategic plan for this computerization project run the risk of investing in a project, which, may not prove to be viable in the long term. In addition lack of a plan might foster other challenging issues such as resistance to change and internal conflicts. Failure to engage in a formal planning process for the computerization project may ignore many of the factors which could enhance or hinder the implementation process. Interdepartmental coordination may be ignored, resulting in multiple standards, poor integration of systems, duplication of effort and resources, as well as a failure to meet individual and organizational needs. When strategic planning is used, procurement of ICT equipments may be planned over time and advanced planning for costs may facilitate investments which support the eventual goals of the rural banks. Planning can also enhance the technological infrastructure through needs assessment and support of the goals of the computerization project throughout the rural banks. Strategic planning is critical to the effective design and implementation of the computerization project within the rural banks. Strategic planning for the computerization project must be viewed by the rural banks, management and board of directors not as an option but as a necessity. To achieve this level of commitment, significant changes in the rural bank environment, including its leadership and management processes may need to be enacted. This perception of the computerization project planning importance is really a top-down view of the goals of the rural

banks.

2. The bottom line for rural banks General Managers must be the creation of an organizational culture where the computerization is valued as a necessary and integral part of the operations and success of the organization. An approach to developing this kind of culture is by the introduction of serious ICT training into their system which will incorporate managerial commitment, measurement and reporting of successes, satisfaction with the system and services to enable the rural banks to strive and compete in this current day banking environment after this computerization.

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