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SCHOOL OF GRADUATE STUDIES

ASSESSEMENT OF INFORMATION TECHNOLOGY
APPLICATION ON SERVICE DELIVERY IN
DEVELOPMENT BANK OF ETHIOPIA

BY

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DECLARATION

I the undersigned, declare that this thesis is my original work, prepared under the guidance of Zemenu Aynadis (Asst. Prof). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to learning any other higher institution for the purpose of earning any degree.

Name

Signature

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January, 2016

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

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St. Mary's University, Addis Ababa January, 2016

ACRONYMS

AICPA	-	American Institute of Certified Public Accountants
ATM	-	Automated Tellers Machine
BPEL	-	Business Process Execution Language
CRM	-	Customer Relationship Management
DBE	-	Development Bank of Ethiopia
DFI	-	Development Finance Institutions
EDP	-	Electronic Data Processing
GTP	-	Growth and Transformation Plan
HRM	-	Human Resource Management
HRIT	-	Human Resource Information Technology
ICT	-	Information Communication Technology
IS	-	Information System
IT	-	Information Technology
ITS	-	Information Technology Service
MFI	-	Micro Finance Institution
NBE	-	National Bank of Ethiopia
SAS	-	Statement of Auditing Standards
UTAUT	-	Unified Theory of Acceptance and Use of Technology
VP	-	Vice President
XML	-	Extensible Markup Language

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Abstract

Information technology has a vital role in the progress of development, enhancement of organizational efficiency, better service delivery and information reliability. Development Bank of Ethiopia is a government owned Bank established to play a pivotal role in the country's economic development through the provision of medium and long term financial support based on the government GTP. In order to fully discharge its responsibilities and play significant role, DBE is expected to be well organized in terms of manpower, finance, organizational structure, creating synergy between core and support units among operating units with updated technology. Thus, the Information Technology Service Process has established to avail the appropriate data and information for various units and staff of the Bank at the right time for decision making. It is also responsible to appreciate and support the proper application or use of information technology by the user department and units to fulfill their regular operation of the bank. On the other hand, IT users units of the bank raise issues on the quality and scope of bank's ITS. Moreover, the NBE's supervisory report and bank's various reports indicate that there are some units which are not sufficiently supported by ITS. In addition to that, some units of the bank indicate that lack or absence of support from the bank's Information Technology Service as a reason for their operational inefficiency. Therefore the objective of the study is to assess Information Technology Application on service delivery of Development Bank of Ethiopia. To evaluate the service delivery, the researcher has used mixed research method. The research design used in this study involved the use of questionnaire and interview in collecting data from selected management members of the bank. The Samples were selected with non probabilistic method of sampling technique. The population of this study comprised all Information Technology Service (ITS) users units of the bank. While the sample size was fifty seven (57) respondents purposefully selected from Nineteen (19) ITS users units. The data which were collected were analyzed using Statistical Package for Social Sciences (SPSS) software version 20. The results of the study indicate that, although there is

sufficient IT infrastructure, the bank's ITS is below the expectation in terms of area of coverage, service delivery, user satisfaction, IT resource utilization. Even though, there are some improvements after the implementation of core banking, the bank's IT service delivery is below expectation. The study discovered that these under performances are the result of lack of skill, knowledge and relevant trainings, lack of motivation, accountability of IT staffs and commitment of leadership, lack of good governance and proper IT management, absence of monitoring and follow up of IT staffs' performance, lack of awareness to customers and bank units needs and absence of IT strategy in the bank. The existences of low performances in application of IT in the bank have contributed for the overall operational inefficiency throughout the bank especially on IT users units. The study recommends that the bank should identify its units and customer needs, recruit knowledgeable IT staffs, provide effective trainings, install proper monitoring and evaluation system to evaluate IT operation, create strategic partnership with firms having high performing IT culture, review and monitor IT systems and soft ware are up to date, suitable and effective and put in place IT strategy.

Key words: Development bank, Information Technology Service, Core Banking, Quality, Efficiency.

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CHAPTER ONE

1.1. INTRODUCTION

An efficient and robust financial system acts as a powerful engine of economic development by mobilizing resources and allocating the same to their productive uses. It reduces the transaction cost of the economy through provision of an efficient payment mechanism, helps in pooling of risks and making available long-term capital through maturity transformation. By making funds available for entrepreneurial activity and through its impact on economic efficiency and growth, a well-functioning financial sector also helps alleviate poverty both directly and indirectly (Adesoye and Atanda, 2012).

Information has always played a prominent role in human life but the emergence of social progress and the vigorous development in science and technology has immeasurably increased the role of information in every facet of human endeavor (Obasan, 2011).

In an increasingly globalized economy, information technology is one of the key determinants of competitiveness and growth of firms and countries. Firms are becoming more competitive on the basis of their knowledge, rather than on the basis of natural endowments or low labor costs. It is becoming increasingly apparent that the role of traditional sources of comparative advantage (a large labor force and abundant natural resources) in determining international competitiveness is diminishing. The competitive and comparative advantages of countries are gradually being determined by access to information technology and knowledge. The comparative advantage that now counts is

man-made, engineered by knowledge through the application of information (Oshikoya and Nurelidin, 2013).

A study carried out by Akinlolu (2004) revealed that the adoption of ICT in banks has improved customer services, facilitated accurate records, provides for Home and Office Banking services, ensures convenient business hour, prompt and fair attention, and enhances faster services. The adoption of ICT improves the banks' image and leads to a wider, faster and more efficient market. It has also made work easier and more interesting, improves the competitive edge of banks, improves relationship with customers and assists in solving basic operational and planning problems.

Development Bank of Ethiopia is one of the government owned bank established to support the overall economic development of the nation by providing short, medium and long -term loans to those investors, who have identified viable projects in the government priority areas by mobilizing funds from domestic and foreign sources while ensuring its organizational sustainability (DBE, 2015).

Furthermore, the Bank also supports the development of micro and small scale industries through provision of loans for projects that produce import substituting products so as to contribute to the reduction of poverty in rural Ethiopia through sustainable access to a range of financial services including savings, credit, micro insurance and money transfers and thereby assuring sustained increase in income and assets of poor rural households. Moreover, DBE supports the country's economic development by on-lending the fund obtained from international lending organizations to micro-finance institutions and private sectors targeted on women entrepreneurship development and market development for renewable energy technologies (DBE, 2015).

This paper assesses Information Technology application on service delivery of Development Bank of Ethiopia.

1.2. Statement of the problem

The Information Technology Service Process is one of the functional units of Development Bank of Ethiopia, has established to avail the appropriate data and information for various units and staff of the Bank at the right time for decision making. It is also responsible to appreciate and support the proper application or use of information technology by the user department and units to fulfill their regular operation of the bank (DBE, 2008).

Accordingly, the management of the Development Bank of Ethiopia and its different operational units expect to be fully supported by information Technology Service for decision making and for effectively execute their day to day operation in terms of office automation, provision of updated application, maintenance support services, technical support and advices, internet and intranet services both in terms of timely access and scope of coverage. On the other hand, IT users units of the bank raise issues on the quality and scope of bank's ITS. Moreover, the NBE's supervisory report and bank's various reports indicate that there are some units which are not sufficiently supported by ITS. In addition to that, some units of the bank indicate that lack or absence of support from the bank's Information Technology Service as a reason for their operational inefficiency and data reliability (NBE, 2015 and DBE, 2015).

Although various studies have been made on related topics on the contribution and service delivery of ITS and ICT in Banking in different parts of the world and in our country, the researcher could not found a research made in this particular Bank – Development Bank of Ethiopia. Moreover, as per the government expectation to execute the second GTP, DBE has taken responsibilities to provide financial support to critical sectors for the enhancement of the development by aggressively conducting branch expansion. Therefore, these realities have motivated the researcher to contribute some in this regard and to pave the way to other researchers to critically further investigate (Akinlolu, 2004, Obasan, 2011, Kaur, 2012, Dr. Tauseef, 2012, Janine, 2005, Belay and Ebisa, 2012).

Hence, the objective of this study is to assess information technology application on service delivery in Development Bank of Ethiopia.

1.3. Basic Research Questions

The researcher tries to answer the following research questions at the completion of the research.

- What is the extent or scope of coverage of Information Technology application on service delivery in DBE?
- What is the level of quality of the information technology service in relation to users' expectation in DBE?
- To what level that the DBE's ITS improved the operational efficiency of employees?
- Is there IT policy, strategy and governance in DBE?
- Is there a gap between users' expectation and ITS facilities provided in DBE?
- How can improve the current level of ITS performance with the ever growing needs of the bank?

1.4. Objectives of the Study

1.5.1. General Objective of the study

The main objective of this study is to assess Information Technology application on service delivery in Development Bank of Ethiopia..

1.5.2. Specific Objectives of the study

The specific objectives of the study are:-

- To assess the scope or area of coverage of DBE's information technology application on service delivery.
- To evaluate the level of the quality of information technology services provided in relation to management and operational units'/users' expectation in DBE.
- To assess IT application on the improvement of employees operational efficiency in the DBE.
- To evaluate the deployment of appropriate IT policy, strategy and governance in DBE

- To identify areas where there is a gap between information technology service provided and required in DBE
- To identify the root causes for ITS performance gap in DBE, if any.

1.5. Significance of the Study

The study will have a practical contribution in such a way that:-

- It gives insight to the management to execute their part for the enhancement of information technology service in the bank.
- It helps to benefit DBE's various units and customers of the bank from the improved service of information technology.
- It will have practical contribution in creating awareness to the Bank's ITS units of the bank by identifying the gaps to be filled.
- It initiates other researchers to critically analyze the area which needs further studies.

1.6. Scope and Limitation of the Study

The objective of the study is to evaluate the contribution of information technology service in Development bank of Ethiopia. Hence, the research evaluated what the extent of information technology service in providing to the various units of the bank in meeting their expectation. With respect to area of coverage, all units of the bank in Addis Ababa who are highly dependent on IT have been covered. Due to time and budget constraints, the study could not include branches and sub branches in the survey although they are represented by their respective supervisory body – Vice President for Branch operation.

1.7. Organization of the paper

The paper is organized in five chapters. The first chapter outlines Background of the organization, Statement of the problem, Basic Research Questions, Objectives of the Study, Significance of the Study, and Scope of the study. Following this, the next Chapter is Review of Related Literature which discusses related literatures, theories

and empirical studies. Chapter three outlines Research Design and Methodology; Chapter four is Results and Discussions. The Conclusions and Recommendation of the paper is provided in the last chapter.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Theoretical Issues

2.1.1. Introduction to Banking

Banks are financial intermediaries that issue deposits and use the proceeds to purchase securities. Banks also provide the service of exchanging deposits and other forms of wealth for currency, but in modern banking this is less important than the accounting system of exchange. Moreover, although both can be used to carry out transactions, one of our main points is that currency and an accounting system are entirely different methods for exchanging wealth. Currency is a physical medium which can be characterized as money. An accounting system works through bookkeeping entries, debits and credits, which do not require any physical medium or the concept of money. In principle, providing an accounting system of exchange does not require that banks hold the wealth being exchanged. In practice, the costs of operating the system - replenishment costs for depositors and costs to banks and transistors of determining when transactions are feasible - are probably smaller when this is the case (Fama, 1980).

Almost all banks, except a few of the largest (the money market banks that are net borrowers), also lend money to other banks through the fed funds market. Reserves, namely, vault cash and non-interest-bearing deposits, are another important entry on the asset side of bank balance sheets. The main functions of banks can be described in terms of the balance sheet items described above. Asset services are provided to the "issuers" of bank assets (the borrowers); these services include evaluating, granting, and monitoring loans. Liability services are provided to the "holders" of bank liabilities (the depositors); these services include holding deposits, clearing transactions, maintaining an inventory of currency, and service flows arising from conventions that certain liabilities are acceptable as payments for goods (Douglas and Philip 1986).

Alin , Analele , Ale Alexandru , Din and Tomul (2008) stated that one of the most well known theories that try to explain the existence of banks and of the banking activity refers to the role of banks as an entity that “follows and verifies” debtors. Because the monitoring of the credit risk determined by the debtor’s inability or bad faith is costly, it is more efficient for the commissioning units (depositors) to delegate this monitoring activity to some specialized entities such as banks. Banks have the necessary expertise and they also benefit from the large scale economy in the processing of information regarding debtor risk.

Banks have the necessary expertise in the processing of information regarding deficit agents, information they obtain because of the experience earned in time in the relationships with deficit agents. Banks have the necessary know-how for performing this type of activities which makes them very attractive for the fund owners. They will want to invest the available funds through banks knowing that they will allocate the funds to debtors who will have the ability to reimburse the loan and, thus, avoid the registering of some costs with obtaining information.

2.1.2. Development Finance Institutions (DFIs)

The Development Finance Institutions (DFIs) invest in private sector companies and projects with the aim of generating development impact while at the same time delivering a financial return. They seek to invest in projects that would not receive funding without their involvement and to attract co-investors from the private sector who would not otherwise have invested in those projects or countries. DFIs also seek to promote responsible corporate governance and to uphold social and environmental standards in the projects in which they are involved (Dalberg, 2010).

An efficient and robust financial system acts as a powerful engine of economic development by mobilizing resources and allocating the same to their productive uses.

It reduces the transaction cost of the economy through provision of an efficient payment mechanism, helps in pooling of risks and making available long-term capital through maturity transformation. By making funds available for entrepreneurial activity and through its impact on economic efficiency and growth, a well-functioning financial sector also helps alleviate poverty both directly and indirectly (Adesoye and Atanda, 2012).

2.1.3. Role of Development Bank

Development finance institution (DFI) is generic term used to refer to a range of alternative financial institutions including microfinance institutions, community development financial institution and revolving loan funds. Also, DFI is defined as "an institution promoted or assisted by Government mainly to provide development finance to one or more sectors or sub-sectors of the economy. The institution distinguishes itself by a judicious balance as between commercial norms of operation, as adopted by any private financial institution, and developmental obligations; it emphasizes the "project approach" - meaning the viability of the project to be financed – against the "collateral approach"; apart from provision of long-term loans, equity capital, guarantees and underwriting functions, a development bank normally is also expected to upgrade the managerial and the other operational pre-requisites of the assisted projects (Adesoyei and Atanda, 2012).

2.1.4. Nature of Development Banking Institutions

Given the objectives of national economic development, one of the most pressing problems of developing countries has always been that financial resources and investments seldom flow to where they are most needed. In other words, market-led resource allocation in underdeveloped economies is often highly distorted, inefficient and unfavorable to economic growth.

Development banks are not, however, established for the sole purpose of providing credit to strategic projects. The other unique objective of such banks is technical support and advice. The need for such packaged service from development banks is mainly justified by the elemental development of entrepreneurship and project management capacity in such economies. Hence, it is argued, given the complex nature of project design and implementation, the emerging entrepreneurial class would find it difficult to fully design, implement and manage projects on its own without support from specialized institutions like development banks. Such capabilities of course require better systems and highly trained professionals in order for the institutions (development banks) to be able to screen viable projects on the basis of technical, managerial and financial considerations.

The above stated two main factors are, therefore, the major justifications for the establishment and continued operation of development banks, like the DBE, in most developing countries. On the other hand, one common problem and challenge, which is

shared by the DBE as well is the multiple objectives usually given to such institutions. Hence, meeting the dual developmental objectives of promoting socio-economic development through employment generation, export promotion etc, while at the same time achieving sustainability will continue to be one of the major challenges of the Bank (DBE, 2008).

2.1.5. Service Quality

Service is more than just giving customers what they want. It is about our organization's values, vision and mission. The way we serve our customer is just as important as the service we provide. If our organization is about providing high-quality products surely we must have a high-quality service (Henrik, 2011).

According to the work of Kumra (2008), service quality is not only involved in the final product and service, but also involved in the production and delivery process, thus employee involvement in process redesign and commitment is important to produce final products or services.

Another research study on service quality is presented by Grönroos (2007) who focuses on a model that is a comparison between customer expectations of the service and their experience of the service they have received before. This model is named "total perceived service quality". As he emphasizes on what customer is really looking for and what they evaluate, the service quality is based on two dimensions. The first dimension is the technical quality and this dimension refers to the outcome, what is delivered or what the customer gets from the service. The next dimension is the functional quality which refers to the manner in which the service is delivered or how it is delivered. Both dimensions affect the corporate image and the perception of quality in various ways. According to total perceived service quality model, perceived quality of a service is not only affected by the experiences of the quality dimensions that the consumer used for evaluating whether quality is perceived as good, neutral, or bad. It is also affected by the perceived quality of given service as well as the outcome of the evaluation process.

2.1.6. Different perspective of service quality

The word quality means different things to people according to the context. Hussain and Therese (2010) mention that David Garvin (1987) identifies five perspectives on quality.

1. The transaction view of quality is synonymous with innate excellence: a mark of uncompromising standards and high achievement. This viewpoint is often applied to the performing and performing of visual arts. It is argued that people learn to recognize quality only through the experience gained from repeated exposure and managers or customers will also know quality when they see it is not very helpful.
2. The product- based approach sees quality as a precise and measurable variable. Differences in quality, it is argued, reflect differences in the amount of an ingredient or attribute possessed by the product or service. Because this view is totally objective, it fails to account for differences in the tests, needs, and preferences of individual customers or even entire market segments.
3. User based definitions starts with the premise that quality lies in the eyes of the beholder. These definitions equate quality with maximum satisfaction. This subjective, demand oriented perspective recognizes that different customers have different wants and needs.
4. The manufacturing based approach is supply based and is concerned primarily with engineering and manufacturing practices, quality is also operation driven.
5. Value based definitions define quality in terms of value and price. By considering the tradeoff between perception and price, quality comes to be defined as “affordable”.

In today increasingly competitive environment, quality service and customer satisfaction are critical to corporate organizations. Delivering high quality service is linked to increased profits, cost savings and corporate image. Customer satisfaction is the route to sustained high performance. Organizations should be aware of the fact that customer dissatisfaction leads to defection and long term losses. Ensuring quality customer service is everybody's business in the organization. However, it is the top management responsibility of creating an environment that fosters customer driven services in a customer oriented organization (Lovelock, 1984). Many companies have realized that profits can be made by satisfying customers. In many instances, this has meant a complete reorganization of the company from research and development and manufacturing to marketing and distribution, aimed at giving customers what they want, when they want it and how they want it (Lawrence, 2012).

2.1.7. Efficiency

As The Efficiency Theory unfolds, it will become apparent how society can function better, wasting far less time, effort, and skills by allowing people to do the things they love to do, restructuring how things are done, and compensating people fairly. It offers insight into how life can be when people understand how interrelated they are, embrace their passions, and bring balance to their lives by fulfilling their purpose (Timothy, 2010).

2.1.8. Reliability

Data reliability refers to the accuracy and completeness of the data, given our intended purposes for the data's use. Three possible assessments can be made—sufficiently reliable data, not sufficiently reliable data, and data of undetermined reliability. In assessing data reliability, we take several factors into consideration, including the degree of risk involved in the use of the data and the strength of corroborating evidence. A single system may have different assessments. For example, data that we used for one audit purpose is accurate and complete, whereas data from the same system used for a separate purpose is not (California State Auditor, 2014).

2.1.9. Information Technology Service

As per the task-based theory characterizing four analytical categories of information services. Mintzberg's (1983) characterizes the diversity of information services by matching information services with information processing tasks in terms of complexity, uncertainty and type of service provided. The following outlines the four analytical categories of information services.

1. Computational service: In situations where people face tasks with low degrees of complexity and uncertainty, they can rely on programmed processing of information and a service that provides an encounter. The computational service is, as the organizational form of the Machine Bureaucracy, standardized and centralized.
2. Adaptive service: In situations where the task at hand is characterized by low degree of uncertainty but high degree of complexity, we cannot rely on centralization of the decision making, and the corresponding information services must therefore mediate a relationship or a pseudo relationship in order to support the local adaptation of the programmed decisions. The information processing can still remain programmed as in the computational service. However, the complexity of the task necessitates that the

service mediates a relationship between its users to allow the distributed experts to interact with the service and thereby address the complex situation

3. Networking service: If an information processing task is characterized by low degree of complexity and a high degree of uncertainty, then an information service in the form of an encounter is needed to support the user in generating new, relevant information thereby coping with the uncertainty at hand. Such information services support emergent decisions through provision of relevant information.
4. Collaborative service: In situations where people are facing both high levels of complexity and high levels of uncertainty, the information service must offer new information based on collaboration between distributed experts. The information processing is emergent and the provided service should mediate relationships. Here decisions emerge through collaboration and mutual adjustment.

2.1.10. Unified Theory of Acceptance and Use of Technology (UTAUT)

Viswanath, Venkatesh, James, Thong and Xin (2012) pointed out that there are four conditions that influences the use of technology. These are performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy is defined as the degree to which using a technology will provide benefits to consumers in performing certain activities; Effort expectancy is the degree of ease associated with consumers' use of technology; Social influence is the extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology; and Facilitating conditions refer to consumers' perceptions of the resources and support available to perform a behavior.

According to UTAUT, performance expectancy, effort expectancy, and social influence are theorized to influence behavioral intention to use a technology, while behavioral intention and facilitating conditions determine technology use.

2.1.11. ITS standards for modern banks

IT in its very nature is dynamic. Therefore, modern banks use the updated and newly introduced IT services to provide efficient services and thereby satisfy their customers. As a result it becomes difficult to clearly pinpoint generally accepted IT service standards to

banks worldwide. However, An Oracle Financial Services (2012) stated that five areas of banking operations where it is essential for banks to review their technology assets to ensure they are up to date and fit for purpose:

- Attracting and engaging customers
- Managing risk
- Transforming business operations
- Optimizing operational efficiency
- Simplifying IT infrastructure

It has identified five software categories that software roles in facilitating the modernization of operations that will help banks attract and engage customers.

- Core banking, for managing customer accounts and their financial transactions.
- Direct banking, for providing internet and mobile banking.
- Data management, for collecting, managing, storing and retrieving data, including scanned paper documents.
- Business intelligence and analytics, for analyzing data, often in real-time, to deliver intuitive, role-based intelligence throughout the organization for fast decision-making. With the power of analytics, banks can understand and manage their risk-adjusted performance objectives and lower the costs of regulatory compliance; they can also analyze profitability across all levels of the organizations.
- Customer relationship management (CRM), for managing relationships across all channels and customer touch-points. CRM software is designed to increase customer satisfaction and retention, increase sales and expand relationships by providing a high quality of service. It can be installed on bank systems, or accessed “on demand” from cloud computers.

Core banking software can be tailored to suit any banking segment: direct, Islamic, wholesale, treasury, commercial and private banking. It also offers a much wider range of features and benefits than earlier versions, so it is important that banks check whether their software provides or can do the following:

- Straight-through-processing – 24 hours a day, seven days a week – of large transaction volumes to reduce cost and increase speed and efficiency.
- Online validations.
- Automated exceptions handling to reduce cost and increase efficiency.
- A highly secure data management system that complies with regulatory requirements and can be integrated easily with third-party solutions.
- An application architecture that uses Business Process Execution Language (BPEL) for business processes, is service-oriented (i.e. Service Oriented Architecture) and is web-services based.
- Works on multiple delivery channels – including branches, ATMs, point-of-sale terminals, call centers, mobiles and internet banking.
- An XML web-based user interface with context-sensitive help.
- Can be easily integrated with existing systems using flexible Java Platform, Enterprise Edition technology.
- Operational risk controls, including limits, collateral and non-performing assets.

2.2 Empirical studies

Many research have been conducted in different parts of the world confirmed that information technology have great role in improving the performance and efficiency in different areas of operation in banking such as credit management, financial accounting, auditing, research, human resource management, planning, risk management and so on.

2.2.1. Role of IT on performance

Information and communication technology has received great thoughtfulness across various industries and substantial positive effect on bank's profitability, cashiers work, banking transaction, patronage, services delivery, and customer's services among other (Obasan , 2011). To attain efficiency and public confidence appropriate legal system and monitoring mechanism has to be put in place (Ayana, 2014).

A study carried out in Nigeria revealed that the adoption of ICT in Nigerian banking sector has helped tremendously to improve the productivity of bank workers, leading to efficiency and effectiveness of operations and service delivery. This study also found that the usage of ICT in banking system will boost bank's profit levels significantly and also customer-relationship will be enhanced (Adesola , Moradeyo and Oyeniya, 2013).

Dr. Tauseef (2012) in his study - Impact of Information Technology on Banking Accounting System "A Case Study of State Bank of India (Rajasthan)" has concluded that use of IT in the State Bank of India has a positive impact on the total income because it is increasing continuously and more rapidly than earlier years as has been shown through the available data of the selected period of study. Increase in deposits of the bank has a positive impact of IT because both bank and customer are using IT frequently and awareness of information technology using also increasing in India. By use of IT, the deposit is more safe in banks than before and available to customer the clock. There is no bar which not possible in earlier time when information technology was not used in accounting system in bank and also as to provide various facilities to its customer like ATMs, electronic cheques, money transfer to another account \ cities etc. After the result obtained by this study, it is quite clear that the increase in the State Bank of India's profit is not only due to increase technology which creating new possibilities of profitability improvement.

Obasan (2011) examined the nature of the relationship that exist between Banks Profitability and the Adoption of Information and Communication Technology. The data analysis showed that a positive correlation exists between ICT and banks profitability in Nigeria. This implies that a marginal change in the level of the investment and adoption of ICT in the banking industry will result to a proportionate increase in the profit level.

Effective use of audit technology tools is critical to the success of audit activity, but is only one step toward understanding the changes technology is bringing about in business and the auditing profession. Emerging technologies will continuously change the shape of and approach to business controls, and audit approaches and techniques must change accordingly. Another important role for auditors, and the auditing profession, is to encourage and support the efforts of providers of systems and new technologies to enhance the built-in monitoring and assurance features of systems without considering them as processing overhead or as elements that contribute to decreased performance. An important role for auditors is to not only understand and change with the technologies, but to also explain the effects of such changes to others (Krishna, Zulkifflee, Meyyappan and Lee, 2011).

2.2.2. Role of IT on efficiency

An efficient and robust financial system acts as a powerful engine of economic development by mobilizing resources and allocating the same to their productive uses.

It reduces the transaction cost of the economy through provision of an efficient payment mechanism, helps in pooling of risks and making available long-term capital through maturity transformation. By making funds available for entrepreneurial activity and through its impact on economic efficiency and growth, a well-functioning financial sector also helps alleviate poverty both directly and indirectly (Adesoye and Atanda, 2012).

Technology, information system (IS) and electronic data processing (EDP) have changed the way organizations conduct its business, promoting operational efficiency and aid decision-making.

According to AICPA's SAS No. 3, the objectives of accounting control are the same in both a manual system and an IT system. However, procedures used by an auditor may be affected. SAS No. 48, explained and recommended auditors to evaluate the methods of computer data processing and other significant factors such as planning and supervision, study and evaluation of internal control, evidential matter, analytical review procedures, and qualifications of the audit team (Krishna et al. 2011).

Technology could help alleviate problems by providing a secure, low-cost, and reliable means of capturing transaction data and then transferring that data in a consistent, standardized manner to MFIs. Such a system could, they reasoned, improve operational efficiencies, decrease transaction costs, and enable sustainable outreach to underserved populations. It also believed that if more reliable data could then be shared, in a standardized way, with other financial providers, issues related to capital investments, fragmentation, and the potential for more diverse portfolios could also be addressed, in part (Janine, 2005).

The research made by Allen (2003) on the study titled *The Economic Effects of Technological Progress: Evidence from the Banking Industry* findings for the 1990s suggest that technological progress resulted in improved quality and variety of banking services that increased costs, and that customers were willing to pay for these improvements so banks were able to raise revenues sufficiently to more than cover the higher costs.

Recent development in information communication and technology has brought with it greater efficiency in the utilization of productive resources through improved competition and innovation. The impact of the development on the Nigerian financial institution has come in form of huge cost savings: convenience, elimination of intermediaries, ability to access remote and far flung areas of the world for new business, enhanced speed at carrying out financial activities, efficiency which is the watch word of modern business (Adekunle and Rafiu, 2014).

IT offers immense opportunities to significantly improve efficiency and effectiveness of the functioning of banks. IT will be a tool not only to improve the operational efficiency of banks but also to serve customers better which in any way is the ultimate aim and objective of all banks (Rangarajan, 2011).

There are a number of problems hindering the smooth delivery of the banking services. The network problem for instance is the major obstacle in the check clearing operations which is the result of inefficient IT services (Belay and Ebissa, 2012).

In creating a viable and efficient banking system, which can respond adequately to the needs of growing economy, technology has a key role to play. The technological challenge is to identify suitable areas of automation, selecting appropriate software and priorities the implementation on suitable and cost effective hardware so that in ultimate analysis, gains outweigh the cost (Kaur, 2012).

In any financial institution in implementing the strategies and objectives the human resource plays significant role. In order to successfully play their role they have to be supported by Human Resource Information Technology (HRIT). As Yu Long (2009) stated that HRIT plays a major role in strategic HR tasks. It changes the management way of traditional HRM, enables such management activities can carry out at any level without further hindrance – top management, line management, employee self-management and external agency. Besides dealing with the information transaction, the strategy HR activities such as workplace learning, career management, business process reengineering, etc. can be better developed and supported with the HRIT application, which helps HR function on a more valuable position.

As Dusmanescu and Aleksandra (2011) quoted the work of Martyn Sloman in their study : “Professionals who deal with human resources, and who fail to realize the potential importance of HRIS system will not be able to fulfill their role in the organization. They

will not be able to provide information which management need for successfully manage operating costs and development of their employees. Management of the HR department should be more ambitious in terms of their requirements and to unite with the IT sector, to enable better functioning of the system.”

2.2.3. Role of IT on information reliability

A study carried out by Akinlolu (2004) revealed that the adoption of ICT in Nigerian banks has improved customer services, facilitated accurate records, provides for Home and Office Banking services, ensures convenient business hour, prompt and fair attention, and enhances faster services. The adoption of ICT improves the banks’ image and leads to a wider, faster and more efficient market. It has also made work easier and more interesting, improves the competitive edge of banks, improves relationship with customers and assists in solving basic operational and planning problems.

An information resource centre drawing on expertise in research, library and technology could be created within the Bank to monitor, compile, study and disseminate knowledge on the developmental applications of information technology. The library will need to be upgraded as a major information resource centre that can develop and maintain databases and document collection via electronic networking (Oshikoya and Nureldin, 2008).

2.2.4. Role of IT on Customer Satisfaction

A study conducted in Nigeria by Dr. Ilo, Joseph, Dr. Ani, and Chioke, Nnanyelugo (2014) revealed that technology innovation has influenced Nigerian banking industry performance. The introduction of ICT has influenced customer satisfactions. ICT has increased banks return on equity and profitability.

Customers can access their account throughout the week as well as outside working hours to make withdrawal without going to the banking hall and this will engendered higher customer satisfaction (Adesola , Moradeyo and Oyeniyi, 2013).

The satisfaction of customers on the overall quality of banking services has negatively affected due to the bank’s low investment in the modern banking technologies. In addition, the delay in maintaining temporary failures in the electronic banking services has also deteriorated the trust they have in the bank (Belay and Ebissa, 2012).

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Research design

According to Mark, Philip, and Adrian (2009), mixed methods research is an approach to enquiry that combines or associates both quantitative and qualitative forms. It involves philosophical assumptions, the use of quantitative and qualitative approaches and the mixing of both approaches in the study.

In order to attain the objective of the study and answer the research questions; the researcher adopted both qualitative and quantitative research approach and the type of research to be conducted is descriptive research. A descriptive study sets out to collect, organize and summarize information about the matter being studied. To describe is to draw a picture of what happened, or of how things are proceeding, or of what a situation or person or event is (or was) like, or means, or of how things are related to each other. It is concerned with making complicated things understandable (Keith, 2006).

Research design according to Keith (2006) on a practical level, it means connecting the research questions to data. Design sits between the research questions and the data, showing how the research questions will be connected to the data, and what tools and procedures to use in answering them. Therefore, it needs to follow from the questions, and to fit in with the data.

3.2. Sampling Techniques and Sample size

Using a survey strategy should give you more control over the research process and, when sampling is used, it is possible to generate findings that are representative of the whole population at a lower cost than collecting the data for the whole population.

Non probability sampling (or non-random sampling) provides a range of alternative techniques to select samples based on your subjective judgment (Mark, et al 2009).

Therefore, the researcher uses non-probabilistic sampling technique to conduct purposeful sampling. Because of the time and resource constraint, it will be difficult to collect data from all IT users in the Bank. However, it is possible to reach by taking selected samples which represent the population and provide rich information. Purposive sampling enables to use judgment to select information-rich samples that will best enable to answer your research question(s) and to meet objectives.

Therefore, the researcher used purposeful sampling techniques to select appropriate persons who are believed to provide sufficient and appropriate information because of their experience and positions.

The total population of the study is the units of the bank which are 66. These units are DBE's Offices of 4 Executive Managements, 18 Processes units and 3 Bureaus at Head Office and 5 Regional and 36 branch offices. From the total population, the survey covers 21 units. These units are selected considering their highly dependence on information technology services in daily operation and considering their representativeness of the population. Generally, 57 questionnaires were distributed to the bank's personnel who are assumed to represent the above mentioned units based on the Krejcie & Morgan (1970) sample size determining table.

3.3. Instruments of Data Collection

The main data collection techniques used in this research study was both questionnaires and interviews so as to exploit their respective advantages.

3.3.1. Questionnaire

Questionnaire is one of the most widely used data collection techniques within the survey strategy. Because each person (respondent) is asked to respond to the same set of questions, it provides an efficient way of collecting responses from a large sample (Mark, et al 2009). The researcher has distributed his questionnaires in person to the executive management members, middle and lower management members which consists both closed ended and open ended questions so as to give the respondents a sort of flexibility and freedom.

3.3.2. Interviews

Interviews are methods of gathering information through oral quiz using a set of preplanned core questions. The use of interviews can help you to gather valid and reliable data that are relevant to your research question(s) and objectives (Mark, et al 2009).

The researcher has used semi-structured interviews which has features of both structured and unstructured interviews. In order to be consistent with all participants, the researcher has a set of pre-planned core questions for guidance such that the same areas are covered with each interviewee. As the interview progresses, the interviewee is given opportunity to elaborate or provide more relevant information if he/she opts to do so.

The interview was conducted in the interviewee's office during working hours with one to one.

3.4. Procedure of Data Collection

The method of data collection techniques consists of questionnaire and interviews. The study was conducted by distributing both open ended and close ended types of questions to executive management members, middle and lower management members selected from respective processes and bureaus by considering their exposures and the relationship they have with other employees due to the responsibility they have in their work units. The questionnaires were distributed personally. With regard to interview, 4 executive management members and 9 top IT users units middle management members were scheduled for interview.

3.5. Methods of Data Analysis

The process of data analysis begins with the categorization and organization of data in search of patterns, critical themes and meanings that emerge from the data. The goal is to create descriptive, multi-dimensional categories that provide a preliminary framework for analysis

An important aspect of data analysis is the search for meaning through direct interpretation of what is observed by themselves as well as what is experienced and reported by the subjects.

During analysis, the non-standardized and complex nature of the data that will be collected will be condensed (summarized), grouped (categorized) or restructured as a narrative to support meaningful analysis (Mark, et al, 2009).

The collected data have been entered into SPSS and analyzed by using descriptive statistics. In this study descriptive analysis is chosen because of its simplicity and clarity. Percentages, diagrams and tables have been used for the analysis of the collected data.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

The objective of this research is to assess the contribution of information technology service in Development bank of Ethiopia. In order to evaluate the IT services provided to different units of the bank, questionnaire has been prepared and submitted and interviews have been conducted as per the criteria. Out of 57 questionnaires 55 were completed and collected. As the result the response rate was 96.5 percent. With respect to interview, it was intended to conduct with 13 top and middle management members. However, it was able to conduct with 9 of them only, because 4 of them could not get time for interview. The age of respondents of the questionnaires ranges from 21 to 60, their educational qualification also ranges from 1st degree to 2nd degree and their work experience in the bank also ranges from 2 to more than 20 years. Their responses are summarized below.

1. Demographic and Related Information of Respondents

Figure 1 Age of Respondents

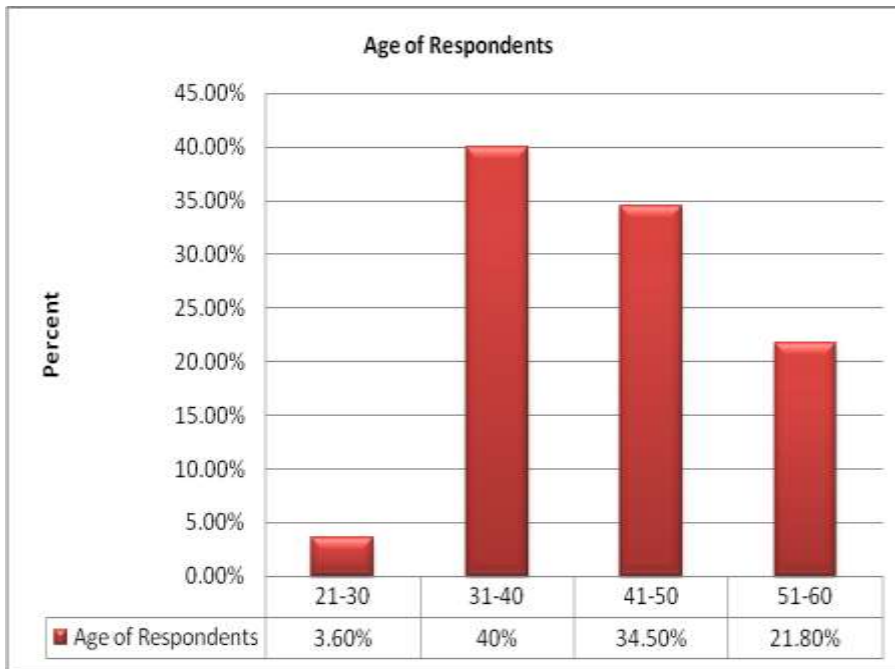
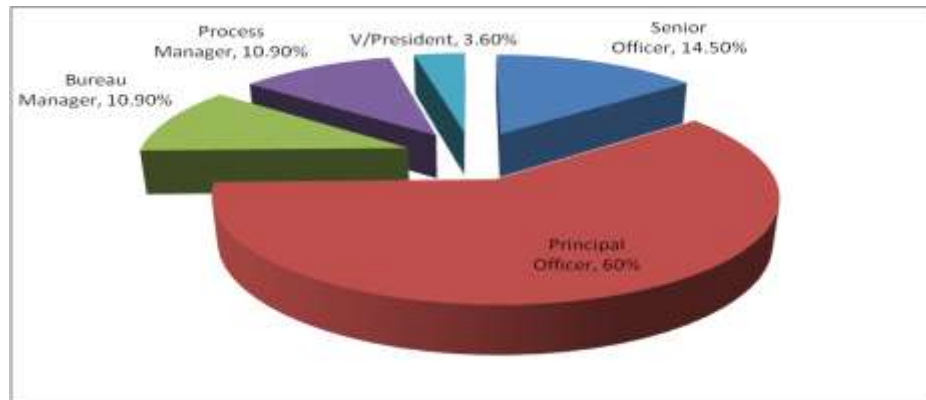


Figure 1 indicates ages of the respondents in their category. Out of the 55 respondents, 2 or 3.6% of them are between 21 - 30, 20 or 43.6% are between 31 - 40, 19 or 34.5% are between 41 - 50 and 12 or 21.8% are 51 - 60.

1.1. Gender of respondents

Out of the 55 respondents 46 or 88.1% of them are males, whereas, 9 or 10.9% are female management members.

Figure 2: Position of respondents



As indicated in figure 2, the position of respondents ranges from senior officer to Vice president. From the total respondents 8 or 15 % are senior officers, 33 or 60% are principal officers which are lower level management members, 6 or 11% are Bureau managers, 6 or 11% are process managers which are middle level management members and 2 or 3 % are vice presidents.

Figure 3: Educational Qualification of respondents

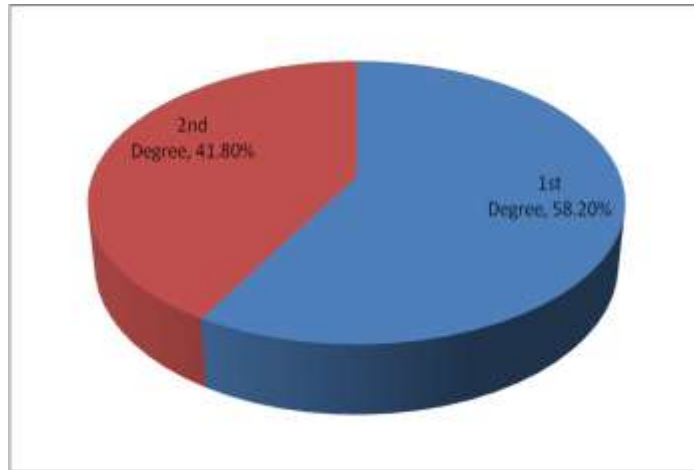


Figure 3 indicates the level of educational qualification of the respondents. Out of the total number of respondents, 32 of them have 1st degree and the rest 23 have 2nd degree.

Figure 4: Work Experience of respondents

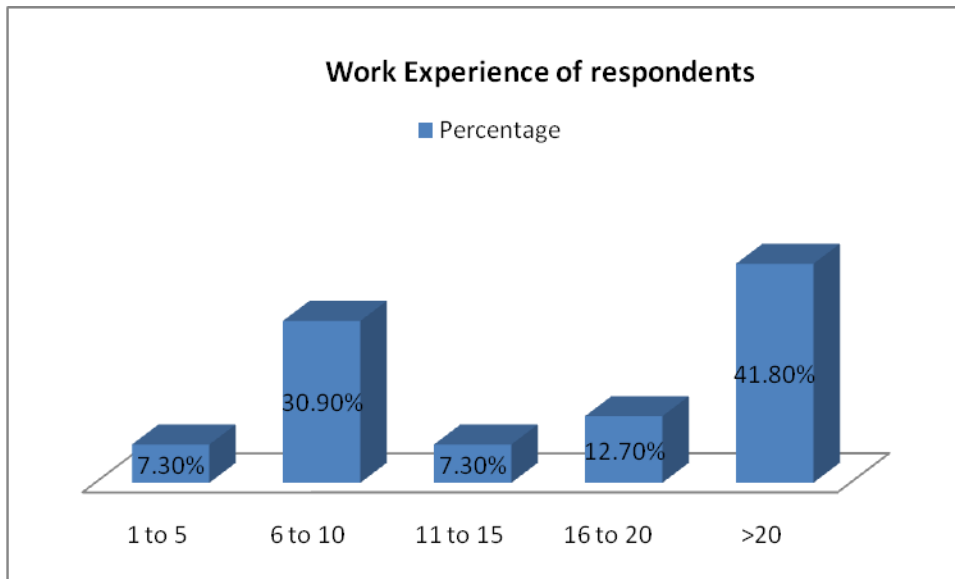


Figure.4 shows work experience of respondents. The largest number i.e. 41.8% have a work experience of more than 20 years. The rest of respondents who have a work experience of 1 to 5, 6 to 10, 11 to 15, and 16 to 20 are 7.3%, 30.9%, 7.3% and 12.7% respectively.

Table 1: IT Service coverage

No	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Regarding the Coverage of ITS in DBE												
1	DBE's ITS adequately supports the operation and service delivery of Finance and Reporting	4	7.3	42	76.4	3	5.5	6	10.9	0	0.0		100
2	DBE's ITS adequately supports the operation and service delivery of Auditing	1	1.9	23	42.6	17	31.5	13	24.1	0	0.0		100
3	DBE's ITS adequately supports the operation and service delivery of Human Resource Management	1	1.9	18	33.3	20	37.0	15	27.8	0	0.0		100
4	DBE's ITS adequately supports the operation and service delivery of Credit processing	3	5.7	35	66.0	8	15.1	7	13.2	0	0.0		100
5	DBE's ITS adequately supports the operation and service delivery of Risk Management	1	1.8	23	41.8	22	40	9	16.4	0	0		100
6	DBE's ITS adequately supports the operation and service delivery of Planning	1	1.9	30	55.6	14	25.9	9	16.7	0	0.0		100
7	DBE's ITS adequately supports the operation and service delivery of Research Process	3	5.5	18	32.7	19	34.5	15	27.3	0	0.0		100
8	DBE's ITS adequately supports the operation and service delivery of Fund Management	0	0.0	19	35.2	22	40.7	11	20.4	2	3.7		100
9	DBE's ITS adequately supports the operation and service delivery of Property Management	0	0.0	19	35.2	22	40.7	11	20.4	2	3.7		100
10	Every units of the bank are supported by ITS Service like core banking and other	2	3.7	12	22.2	20	37.0	18	33.3	2	1.8		100
	Total		3		44		31		21		1		100

Source: Own Survey 2015

Table 1 shows that the summary of respondents which they responded to the questions posed in the questionnaire regarding on the bank's Information technology Service coverage to different units of the bank. The aim of these questions was to know how much the different units of the bank have been served by the information technology units of the bank. Out of 55 respondents 47.61% of them have responded that they have adequately supported by the bank's ITS; 21.81% feels that the ITS have not supported the bank's units adequately; while the rest 28.92% stood in between. The majority of the respondents feel that the bank's ITS have supported especially the finance and account process, the credit process, the planning and the risk management process. The audit, the HRM, the fund management, the property management process have not sufficiently supported by the bank's ITS. With regard to the service provided by the core banking solution, only 25.4% of the respondents believed that the bank's units have been supported: 36.3% of the respondents do not feel that every units of the bank have got support by IT; the rest 36.4% of the respondents preferred to be neutral.

As it is noted from the response of the respondents, the bank's units are not fully supported by IT. Relatively the finance and accounts, the credit process, the planning and the risk management are supported by IT, the information obtained from the interview also confirmed that even though these units have got the support from IT, compared to the capacity of the core banking software only part of the applications are in use. The bank has to review its software and IT performance, and update it where necessary, so that it can be an enabler of the modernization program (Oracle. 2012). In addition to that, an assessment on bank unit needs to be made so as to get the required support from IT unit which helps them to make informed decisions on how to transform ICT and to exploit the opportunity in electronic banking (Southard and Siau, 2004).

Others like HRM, Auditing, Property management, and Fund management processes are relatively have got lower support. Currently the bank IT supports little the operation of HRM. HRIT plays a major role in strategic task of organization. It changes the management way of traditional HRM, enables such management activities can carry out at any level without further hindrance. Failing to realize the potential importance of HRIT, it will be difficult to fulfill the

strategy of organization (Yu long, 2009 and Dusmanescu, 2011). With respect to property management the bank is required to utilize appropriate information technology which can handle the fixed asset management and the procurement process smoothly. The audit process is also one of the units which have got little support from the IT. Although, effective use of audit technology tools is critical to the success of audit activity, the bank's audit unit has performing with the traditional way of performing audit tasks due to the unavailability of auditing application (Krishna, 2011). As it is well known fund management is critical for any financial institution. In order to utilize effectively the bank's financial resources, proper and effective fund management is vital. Hence, appropriate IT application is necessary for full support of this strategic task. Because, banks that are well equipped with a good grasp of the electronic banking phenomenon will be more able to make informed decisions on how to transform ICT and to exploit the opportunity in electronic banking (Southard and Siau, 2004).

Table 2: Users' Satisfaction

No	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Regarding the Contribution of ITS on customer satisfaction												
1	ITS have improved the Bank's users' satisfaction by providing the required Financial Accounting application	2	3.6	27	49.1	15	27.3	11	20	0	0.0		100
2	ITS have improved the Bank's users' satisfaction by providing the required auditing application	2	3.7	7	13	29	53.7	16	29.6	0	0.0		100
3	ITS have improved the Bank's users' satisfaction by providing the required Risk management application	1	1.9	14	25.9	23	42.6	15	27.8	1	1.9		100
4	ITS have improved the Bank's users' satisfaction by providing the required Credit processing application	0	0	24	45.3	14	26.4	14	26.4	1	1.9		100
5	ITS have improved the Bank's users' satisfaction by providing the required human Resource management application	2	3.6	12	21.8	22	40.0	18	32.7	1	1.9		100
6	ITS have improved the Bank's users' satisfaction by providing the required Fund management application	1	1.9	11	20.8	24	45.5	15	28.3	2	3.8		100
7	ITS have improved the Bank's users' satisfaction by providing the required planning application	1	1.9	19	35.2	19	35.2	14	25.9	1	1.9		100
	Total		2.37		30.1		38.67		27.24		1.62		100

Source: Own survey 2015

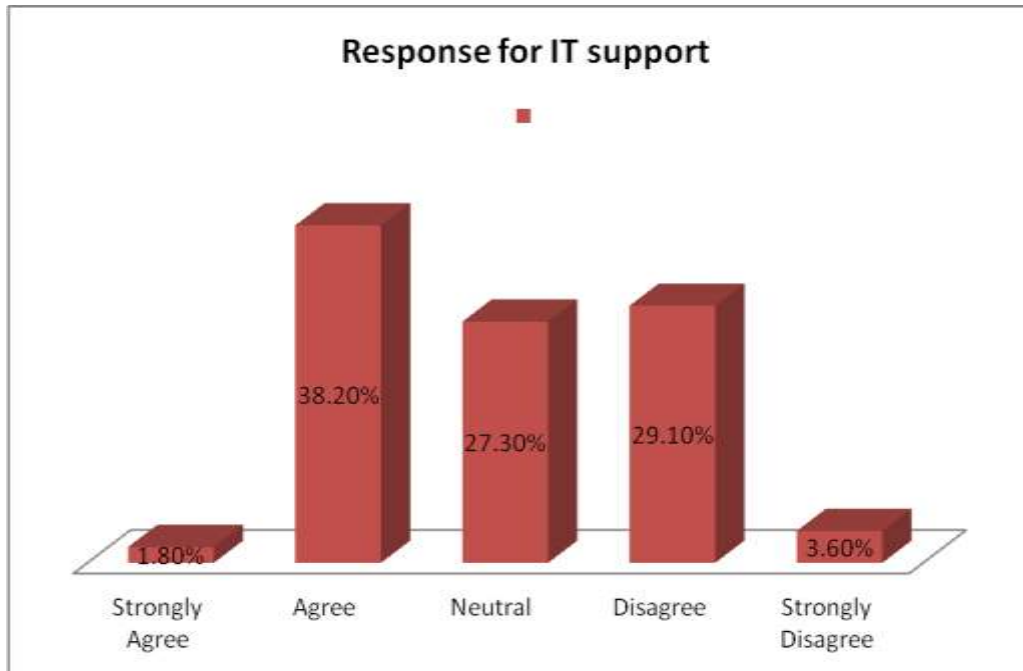
The objective of Table 2 is to get users feeling on the bank's ITS contribution in satisfying the bank's users. The results of the above table indicates that generally 32.38% of the respondents agree that ITS have improved the bank's user satisfaction by providing the required application for its different units; 28.86% Do not agree with the above statement; whereas, 38.67% of the respondents preferred to be neutral to the questions. If we see their response in detail, most of the respondents i.e. 52.7% assume that ITS have improved the bank's financial accounting and reporting by availing the required application. As a result user satisfaction has been improved; 20% do not agree with the above statement while 27.3% are neutral.

Next to financial accounting and reporting, positive responses have been registered on user satisfaction by providing credit processing and planning applications i.e. 45.3% and 37.1% respectively. On the other hand, those who opposed the above statements are 28.1% and 27.8% respectively. Those respondents who set themselves neutral for the above statements are 26.4% and 35.2% respectively.

With respect to auditing, the response seems to be unfavorable .i.e. only 16.7% believes that the ITS have improved the bank's user satisfaction by providing the required application for auditing. The rest 29.6% and 53.7% do not agree and being neutral on the preceding statement. The results for the questions on ITS contribution for the improvement of user satisfaction by providing risk management, Human Resource Management and Fund Management is somewhat similar with the results of auditing. Respondents who are responded in favor of improvement of user satisfaction 27.3%, 25.4%, and 21.8% for Risk, Human Resource and Fund Management respectively. While for disagreement for the above statement, the response rate is 29.1% 34.3% and 30.9% for Risk, Human Resource and Fund Management respectively. Those who are responded indifferently are 41.8%, 40% and 43.6% for Risk, Human Resource and Fund Management respectively.

Generally it is revealed that both in the questionnaire and interview, the bank's ITS unit supports to different units of the bank is below expectation. Even those units which are relatively got better support needs much more to improve their user satisfaction like access their loan and deposit account throughout the weeks and as well as outside working hours. The bank should work to clearly identify its units and user needs by collecting their needs and provide more attentive service, integrating multiple delivery channels and bringing new products to make its service more efficient and brings about user satisfaction and operational efficiency (Adesola, 2013 and Oracle 2012).

Figure 5: Response for ITS Support



Source: own survey 2015

Figure 5 depicts that the level of responses provided by the Bank's IT unit whenever and wherever various bank units required ITS support. The aim of this data was to have the view of respondents whether they get the required IT units' technical and professional support while facing difficulties in daily operation or any problem arises. As per the response 40%, 32.7% and 27.3% respondents showed their agreement, disagreements and being indifference respectively on the IT unit response while their support is required.

Although, 40% of the respondents agree with the timely response of IT unit whenever they encountered some problem or in need of technical assistance, the rest respondents are not agreed with the timely response. This is a clear indication for the level of service provided by IT unit in terms of technical support. The information technology service unit in the bank is also a provider of service to the users, specifically technical support. This service is an integral part of the

complete set of IT products and/or service provided by the IT department. Irrespective of whether a user interacts with one or multiple information systems, the quality of technical support can influence service quality. The technical support, thus, is of importance to the user as well as to the ultimate customer. The technical support has an impact on service quality, especially when the information technology service is critical to the performance of the bank (Bharati and Berg, 2003).

The results of the survey and the interview revealed that the low level of ITS technical support is due to insufficient capable IT staffs, low motivation and lack of monitoring and supervising mechanism. Introduction to physical equipment will not solve the problem of information availability and flow unless it is coupled with human capacity and skill (Owrogi, 2009). Therefore, the bank should employ people with proper information technology knowledge and skill. Moreover, frequent trainings should be provided to IT staffs to build their capacity in addition to that install proper monitoring and evaluation mechanism to evaluate their performance in general and each IT staffs in particular.

Table 3: IT infrastructure and Modernity

No	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Regarding IT infrastructure and Modernity												
1	Adequacy of IT infrastructure	2	3.8	14	26.9	19	36.6	14	26.9	3	5.8		100
2	Adequacy of System development/application	0	0	9	16.4	15	27.3	29	52.7	2	3.6		100
3	Availability of modern IT	3	5.3	33	61.1	11	20.4	6	11.1	1	1.9		100
4	Updating of IT constantly	1	1.8	11	20	20	36.4	21	38.2	2	3.6		100
5	Adequacy of Data storage	2	3.6	12	21.8	22	40.0	18	32.7	1	1.9		100
6	Adequacy of Data Administration	1	1.9	11	20.8	24	45.5	15	28.3	2	3.8		100
Total			2.62		30.4		32.48		30.74		4.1 2		100

Source: Own Survey 2015

Table 3 shows that the bank's different units perceptions on what the Bank's IT stands with respect to the of modernity of IT, adequacy of system development/application, adequacy of data storage and administration and updating of IT with the ever changing IT technology and the bank's and customer needs. Generally as per the perception of respondents', the bank IT infrastructure and is somehow good but not satisfy as to the expectation. 61% of the respondents feel the bank uses modern IT especially after implementing core banking software. 13% of the respondents disagree on the availability of modern IT technology; whereas, 20.4% are neutral to the subject. The other positive response forwarded by respondents was the adequacy of data storage. About 38.9%, 35.2% and 25.9% score was given for agree, neutral and disagreement respectively.

Low results have been given to questions raised on Adequacy of System development/application, Adequacy of Data Administration and Updating of IT constantly. Accordingly, the results indicate 16.4%, 20% and 17.6% respectively agreed with the adequacy and updating of the aforementioned. In the contrary, 37.3% 41.8% and 56.3% respondents do not agree with the adequacy of system development, adequacy of Data Administration and Updating of IT constantly. The rest have neither agreed nor disagreed on adequacy of system development, adequacy of Data Administration and Updating of IT constantly scoring 27.3%, 36.4% and 43.1% respectively.

The survey results revealed that low points have been recorded with the modernity of the bank. Therefore, the bank needs to ensure that they are as up to date as possible. Legacy applications and systems still work, of course, and therefore have their place, but ultimately they need to be phased out and replaced with the latest applications and systems if bank modernization programs are to have any real chance of success (Oracle, 2012).

Modernizing operations includes reviewing all processes and IT systems and software, simplifying organizational structures, enhancing customer service, increasing the speed and effectiveness of services, and improving governance, risk management and regulatory compliance. Therefore, is that when banks embark on any kind of modernization program, the

need to review their technology and make sure it is fit for purpose. Where it is not fit for purpose, it needs to be re-purposed and upgraded. Where existing systems and applications are deemed to be still useful, and are left in place, their suitability and effectiveness must be monitored, regularly (Oracle, 2012).

Table 4: Level of IT usage and Trainings

No	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No	%
	Regarding the Level of IT usage												
1	Required training provided to employees	2	3.7	18	35.2	18	35.2	11	20.4	3	5.6		100
2	Use of IT minimized mistakes and dissatisfaction	1	1.9	31	58.8	13	24.5	8	15.1	0	0		100
3	Usage of IT is simple to employees	1	1.9	5	9.3	29	53.7	16	29.6	3	5.6		100
4	Customer use ICT to undertake transaction	1	1.9	12	23.1	14	26.9	17	32.7	8	15.4		100
5	Customer understand IT based reports easily	1	1.9	10	18.5	22	40.7	18	33.3	3	5.6		100
Total			2.26		28.88		36.2		26.22		6.44		100

Source: Own Survey 2015

Table 4 indicates the feelings of employees towards the use of IT in the bank and the perceptions of both employees and bank's customers in dealing with IT and IT generated reports and statements. As depicted in the table 2.4 there is positive response towards the use of IT minimized the occurrences of mistakes and dissatisfaction and required trainings have been given to employees. Scores of 60.7% and 38.9% are registered for the agreement of the above statements respectively. For disagreement, it is 15.1% and 26% and for neutrality, it is 24.5% and 35.2% respectively. With regard to the feelings of employee on simplicity in using of IT by employees and understanding of the systems and system generated reports and statements, it is low results registered. Those who are agreed on the simplicity of IT usage, undertaking transaction using IT by customers and customers understand IT based reports and statements are 10.2%, 25% and 20.3% respectively. Those who do not agree with the above statements are 35.25, 48.1% and 38.9% respectively. Whereas, 53.7%, 26.9% and 40.7% of respondents are neither agree nor disagree with the above statements respectively.

Implementing new technology brings about minimized mistakes and dissatisfaction and subsequently operational efficiency. In this regard, the survey and interview results revealed that sufficient trainings have been given to employees so as to properly utilize the IT resources. Whereas, the usage of IT by employees and IT generated reports to be understood easily by customers are not simple as per the expected. Therefore, the bank should conduct more effective and continuous training for employees in order to enhance their performance. And also management of the bank should ensure the quality and its user friendliness when procure any IT product.

Table 5: ITS Policy and Governance

No	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Regarding IT Policy and Governance											No.	%
1	Bank's ITS in good manner on providing for organizational success	1	1.9	17	32.1	17	32.1	16	30.2	2	3.8		100
2	The bank has utilized its IT resources efficiently	0	0	7	12.7	27	49.1	16	29.1	5	9.1		100
3	The bank has invested sufficiently in IT	4	7.3	21	38.2	15	27.2	11	20	4	7.3		100
4	The bank has gained maximum benefits from investment in IT	0	0	6	10.9	23	41.8	20	36.4	6	10.9		100
5	Management Sufficiently supports ITS	2	3.6	18	32.7	19	34.5	13	23.6	3	5.6		100
6	IT policy and governance exist in the Bank	0	0	19	33.6	21	38.9	13	24.1	2	3.7		100
Total			2.13		26.75		37.25		27.23		6.72		100

Source: Own Survey 2015

Table 5 is to have a view on the existence of IT policy and governance arrangements in the bank which can ensure the application, management and review of ICT plan are consistent and with the goals and objectives of the bank. With regard to the bank's investment on IT, management support to improve the IT and the existence of IT policy and governance, relatively high score is registered by respondents. 45.5%, 36.3 and 33.9% on agreement of the above statement respectively. Those respondents who expressed their disagreement on the above statements are, 27.2%, 29.1% and 27.8% respectively. The rest are 27.3%, 34.5% and 38.9 are neither agree nor disagree with the above statements respectively.

On the other hand, the manner of ITS organization for achievement of organizational goal, IT resource utilization of the bank, and benefits obtained from IT investment have got lower results. i.e.34%, 12.7% and 10.9% agreed in favor of the above statement respectively. Those respondents who disagree on the statement describing that Bank's ITS is in good manner on providing for organizational success, the bank has utilized its IT resources efficiently and The bank has gained maximum benefits from investment in IT are 34%, 38.2% and 47.3% respectively. The rest 32%, 49.1% and 41.8% are neither agree nor disagree with the above statements respectively.

IT offers immense opportunities to significantly improve efficiency and effectiveness of the functioning of banks. IT will be a tool not only to improve the operational efficiency of banks but also to serve customers better which in any way is the ultimate aim and objective of all banks (Rangarajan, 2011). Although, respondents believe that the bank has sufficiently invested on infrastructure on ITS and there is management support for ITS, the results of the survey and interview show that the bank's ITS unit has not sufficiently provides supports for the efficiency and effectiveness of operations. Moreover, the bank has not been sufficiently utilized the resources.

These under performances, as per the respondents are the result of lack of skill, knowledge and relevant trainings, lack of motivation, accountability of IT staffs and commitment of leadership, lack of good governance and proper IT management, inability to retain

experienced employee in the area, absence of monitoring and follow up of the employees' performance, and lack of awareness to customers and bank units needs and generally absence of IT strategy in the bank.

Table 5: Factors affecting the performance of ITS in DBE

Sr. No.	Factors affecting the performance of ITS in DBE	Rank
1	Lack of skilled manpower and motivation of IT Staffs	1
2	Lack of management awareness and support to improve DBE's ITS unit	2
3	Absence of sufficient infrastructure and budget limitation	3
4	Lack of awareness and attention to customer needs	4
5	Lack of awareness and attention to Bank units needs	5
6	Absence of IT policy and governance	6

Source: Own Survey 2015

Table 6 is to identify the major problem encountered by the bank on the existing performance of ITS in the bank. The problems presented in the table were pre-test findings of the researcher and respondents are requested to prioritize as per their importance. Accordingly, respondents have been prioritized as per their perceptions and observations. The lion share of the challenge is given to "Lack of skilled manpower and motivation of IT Staffs" which is ranked first. The next most important challenge as per the respondents is "Lack of management awareness and support to improve DBE's ITS unit" which is second "Lack of awareness and attention to customer needs", "Lack of awareness and attention to Bank units needs", "Absence of IT policy and governance" and "Absence of sufficient infrastructure and budget limitation" ranked 3rd, 4th, 5th and 6th respectively.

The respondents of the questionnaires and interview underscored the human resource is the major factor for the performance of the ITS. They emphasized on the human elements. The skill and capacity of IT staffs, their level of motivation and monitoring and evaluation of their task being weak have contributed the major share for the low quality of the ITS in the bank. Next to the human element, the lack of management awareness and support to improve the bank's IT is also contributed for low service quality of the IT in the bank. As per the respondents the management of the bank is expected to go further miles to clearly identify the status of the bank's ITS and establish appropriate governance arrangement to ensure the ITS is delivering what is expected to the bank in consistent with the bank's goals and objectives.

Respondents were asked to forward their comments on the provision of trainings on IT to relevant staffs to acquaint with the necessary knowledge and skills. Most believe that relevant trainings have been given to staffs especially in core banking applications and it does not fully cover other areas of operation. Moreover, they commented it has to be continuous and updated. Others believe that the bank has not provided sufficient trainings to relevant staffs especially to IT staffs. This is manifested whenever different units requested support from IT unit, they are not in a position to provide the required support and solve the problem.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The survey as presented on this work assessed the contribution of information technology service in Development bank of Ethiopia. The assessment has been made using survey and interview methods. The findings are evaluated against the literatures and previous related researches.

With respect to are of coverage of the bank's IT services, in relative terms finance and accounts, credit, and planning process are supported by ITS. Especially with the introduction of core banking software in the bank relatively better supports have been given to some bank units, although the software is not exploited its full capacity. Others bank units such as HRM, property management, fund management, auditing are not supported. These show the bank's ITS coverage is below the expectation.

Concerning to the contribution of IT for the improvement of users satisfaction, the results show the bank's IT service is far behind to the expectation and the needs of the bank units to deliver efficient service and thereby satisfy users. The bank should work to clearly identify its units and customer needs by collecting their needs and provide more attentive service, integrating multiple delivery channels and bringing new products to make its service more efficient and brings about customer satisfaction and operational efficiency.

The information technology service unit in the bank is also a provider of service to the users, specifically technical support. This service is an integral part of the complete set of IT products and/or service provided by the IT department. The survey also evaluated the provision of ITS unit's technical and professional support to different units of the bank while facing difficulties in daily operation or any problem arises. The results of the survey and the interview revealed that the quality of technical support in this regard is low. Its quality is usually defined in terms of timeliness, accuracy, reliance etc. The low level of

ITS technical support is due to insufficient capable IT staffs, low motivation and lack of monitoring and supervising mechanism. To improve these deficiencies the bank should employ people with proper information technology knowledge and skill, provide updated trainings to IT staffs to build their capacity, and install proper monitoring and evaluation mechanism to evaluate the performance of IT unit in general and each IT staffs in particular.

Generally as per the perception of respondents, the bank IT infrastructure is somehow good and modern. However, it does not satisfy the expectation of all units and users needs. Modernizing operations includes reviewing all processes and IT systems and software, simplifying organizational structures, enhancing customer service. When banks embark on any kind of modernization program, they need to review their technology and make sure it is fit for purpose. Where existing systems and applications are deemed to be still useful, and are left in place, their suitability and effectiveness must be monitored, regularly (Oracle, 2012).

The survey and interview results revealed that sufficient trainings have been given to employees so as to properly utilize the IT resources. Whereas, the usage of IT by employees and IT generated reports are not simple to understand both by users and customers as expected. Therefore, the bank should conduct more effective and continuous training for employees in order to enhance their performance. And also management of the bank should ensure the quality and its user friendliness when procure any IT products. Moreover, users and customer needs should also be identified so as to deliver customer focused services.

Although, respondents believe that the bank has sufficiently invested on infrastructure on ITS and there is management support for ITS, the results of the survey and interview show that the bank's ITS unit has not sufficiently provides supports for the efficiency and effectiveness of operations. Moreover, the bank has not been sufficiently utilized the resources. These under performances, as per the respondents are the result of lack of skill,

knowledge and relevant trainings, lack of motivation, accountability of IT staffs and commitment of leadership, lack of good governance and proper IT management, absence of monitoring and follow up of the employees' performance, and lack of awareness to customers and bank units needs and generally absence of IT strategy in the bank.

5.2. Conclusions

The study aims to evaluate the contribution of information technology service in Development Bank of Ethiopia and the level of services provided by IT compared to users expectations. To achieve the proposed objectives, the researcher used survey and interview and has reached to the following conclusion.

The bank has been investing in IT and relatively better support has been given especially after the introduction of core banking software to finance and accounts, credit and planning process. Others bank units such as HRM, property management, fund management, auditing have got a little support. These show the bank's ITS coverage is below the expectation.

Concerning to the contribution of IT for the improvement of users satisfaction, the results show the bank's IT services are far behind to the expectation and the needs of the bank units to deliver efficient service and thereby satisfy customers.

The information technology service unit in the bank is also a provider of service to the users, specifically technical support. This service is an integral part of the complete set of IT products and/or service provided by the IT department. The results of the survey and the interview revealed that the quality of technical support in terms of timeliness, accuracy, and reliance is low.

Generally the bank's IT infrastructure is somehow good and modern, but it needs to review their technology and make sure it is fit for purpose. Where existing systems and applications are deemed to be still useful, and are left in place, their suitability and effectiveness must be monitored, regularly. With respect to trainings, sufficient trainings have been given to employees so as to properly utilize the IT resources. Whereas, the usage

of IT by employees and IT generated reports are not simple to understand by users and customers.

The bank has sufficiently invested on infrastructure on ITS and there is management support for ITS, the results of the survey and interview show that the bank's ITS unit has not sufficiently provides supports for the efficiency and effectiveness of operations. Moreover, the bank has not been sufficiently utilized its IT resources.

These under performances are the result of lack of skill, knowledge and relevant trainings, lack of motivation, accountability of IT staffs and commitment of leadership, lack of good governance and proper IT management, absence of monitoring and follow up of the employees' performance, and lack of awareness to customers and bank units needs and generally absence of IT strategy in the bank.

5.3. Recommendations

The findings of this study offer additional insights into the current contribution of information technology service in Development Bank of Ethiopia and its performance against different bank units customer needs.

The bank's ITS in terms of coverage and service delivery to different bank units and contribution to customer satisfaction is below the expectation. Therefore, the bank should work to clearly identify its units and customer needs and provide more attentive service, integrating multiple delivery channels and bringing new products to make its service more efficient and brings about customer satisfaction and operational efficiency.

To deliver efficient services, the existence of capable and motivated professionals is crucial. Therefore, the bank while recruiting should ensure that the employee has possessed the required information technology knowledge and skill. For the existing IT staffs, provide effective and updated continuous trainings to build their capacity, and install proper monitoring and evaluation mechanism to evaluate IT unit in general and each IT staffs in particular. Moreover, the bank should exploit others experiences by creating strategic partnership with firms having high performing IT culture.

The bank should also review its IT systems and soft ware to ensure they are performing as intended and they are up to date. Where it is not fit for purpose, it needs to be re-purposed and upgraded. Where existing systems and applications are deemed to be still useful, and are left in place, their suitability and effectiveness must be monitored, regularly.

The bank should also put in place IT strategy. This helps the bank to monitor and ensure that the IT unit which is responsible for the performance of the bank's ITS is delivering its services and executing its duties and responsibilities towards achieving the bank's goals and objectives. This issue is critical because the bank is now on the eve of aggressive branch expansion and this requires harmonizing branches integration, therefore, more attention should be given on how ITS supports the tasks.

Finally, it is recommended that the bank has to critically look into the above findings and taking rectifying measures can bring about more efficiency towards the performance of the overall bank's operations, users and customer satisfaction and resource utilization.

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APPENDIX - A

St. Mary's University

School of Graduate Studies

MBA Degree in Accounting and Finance

Questionnaire to Evaluate the Contribution of Information Technology Service in Development Bank of Ethiopia

Dear Respondents,

This questionnaire is prepared to collect data from Development Bank of Ethiopia (DBE) personnel to undertake evaluation of the contribution of Information Technology Service (ITS) in the Bank's daily operation and management decision. The information that you provide will be used only for the analysis of the study which I am conducting as partial fulfillment of the MBA degree in Accounting and Finance.

I kindly request you to respond freely and honestly as your response has great value in assessing the current contribution of ITS in the Bank's operation and management decision.

I assure you that all your responses will be kept strictly confidential and used only for academic purpose. Thank you for your cooperation and response.

General Direction:

- You are not required to write your name
- Please put (√) mark in the box that best describes your response
- Write your opinion on the blank space provided and for some items you can use other sheets of paper if the space provided is not sufficient.

PART-I: GENERAL INFORMATION OF RESPONDENTS

1. Age: <20 21-30 31-40 41-50 >50

2. Gender Male Female

3. Educational level: Diploma 1st Degree 2nd Degree PhD

4. Years of service in the bank:

1-5 6-10 11-15 16-20 >20

5. Job position: S/Branch Mgr./ Sr. Officer

Principal Officer

Bureau/Office/Branch Mgr.

Process/ Region Mgr. V/President

- Please specify your Job position if other: _____
- Working unit of the respondent _____

**PART-II: GENERAL INFORMATION ABOUT INFORMATION TECHNOLOGY SERVICE
IN DBE**

1.) Why was information technology service introduced in DBE?

- (i) To automate accounting & other related core operations
- (ii) To provide efficient & effective banking services and products
- (iii) Cope up as competitive advantages
- (iv) Other (please specify) -----

-

2.) What does information technology service brought to DBE on daily operation?

- (i) Increased efficiency and effectiveness
- (ii) Improved service delivery & channels
- (iii) Reduced cost
- (iv) Increase number of customer
- (v) Other (specify).....

**PART-III: DETAIL INFORMATION ABOUT INFORMATION TECHNOLOGY
SERVICE IN DBE**

Sr. No	Description	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
	Regarding the Coverage of ITS in DBE					
1	DBE's ITS adequately supports the operation and service delivery of Financial Accounting and Reporting					
2	DBE's ITS adequately supports the operation and service delivery of Auditing					
3	DBE's ITS adequately supports the operation and service delivery of Human Resource Management					
4	DBE's ITS adequately supports the operation and service delivery of Credit processing					
5	DBE's ITS adequately supports the operation and service delivery of Risk Management					
6	DBE's ITS adequately supports the operation and service delivery of Planning					
7	DBE's ITS adequately supports the operation and service delivery of Research Process					
8	DBE's ITS adequately supports the operation and service delivery of Fund Management					
9	DBE's ITS adequately supports the operation and service delivery of Property Management					
10	Every units of the bank are supported by Information					

	Technology Service like core banking and other					
	Regarding the Quality of information Technology Service provided					
1	ITS is approachable to users whenever and wherever they need it					
2	System development/Creation of application is adequately done in DBE					
3	The bank uses modern information technology facilities to ease its operation					
4	There are constant updates on the development of IT in DBE?					
5	Required training is provided for usage of ITS					
6	Usage of ITS is very simple throughout the Bank					
7	There is adequate data storage facility in DBE					
8	There is adequate data administration- ensuring integrity and security of the data					
9	There is adequate IT infrastructure in DBE					
10	The use of ITS has minimized operational mistakes and dissatisfaction of users in DBE					
11	Quality service is provided by the bank's IT unit					
12	Customers use ICT in undertaking financial transactions with DBE like transfer from or to their accounts, to look their loan/account statements					
13	Customers understand the bank's IT based reports easily such as loan statements and the like					
14	Users (and managers) perceive IT'S as satisfactory.					
	Regarding the Contribution of ITS on Users' satisfaction					
1	ITS has improved the Bank's users' satisfaction by providing the required Financial Accounting application					
2	ITS has improved the Bank's users' satisfaction by providing the required auditing application					
3	ITS has improved the Bank's users' satisfaction by providing the required Risk management application					
4	ITS has improved the Bank's users' satisfaction by					

	providing the required Credit processing application					
5	ITS has improved the Bank's users' satisfaction by providing the required human Resource management application					
6	ITS has improved the Bank's users' satisfaction by providing the required Fund management application					
7	ITS has improved the Bank's users' satisfaction by providing the required application for planning					
8	The use of ITS have increased the performance of bank's employees					
9	The use of new information technology have enhanced the decision making process in every level in DBE					
10	Use of IT has improved the reliability of information in DBE such as Financial Accounting and Reporting					
	Regarding IT policy and Governance					
1	ITS is in a very good manner to provide achievement of business and organizational goal					
2	DBE has utilized its IT resources efficiently and effectively					
3	DBE has sufficiently invested in information technology service					
4	DBE has gained the maximum benefits from the investment in ITS					
5	DBE's Management sufficiently supports ITS for its improvement					
6	There exist IT policy and governance in DBE					

PART-IV: PRIORITIZING MOST IMPORTANT CHALLENGES ON THE EXISTING PERFORMANCE OF INFORMATION TECHNOLOGY SERVICE IN DBE

The under listed factors are among the major challenges encountered (as per pre-test findings & physical observation) in the performance of ITS in DBE. Please rank from the **most to the least serious** reason for the existing performance in ITS. (1=most serious, 2=the next most serious....)

Sr. No.	Factors affecting the performance of ITS in DBE	Rank
1	Lack of skilled manpower and motivation of IT Staffs	
2	Lack of management awareness and support to improve DBE's ITS unit	
3	Absence of sufficient infrastructure and budget limitation	
4	Lack of awareness and attention to customer needs	
5	Lack of awareness and attention to Bank units needs	
6	Absence of IT policy and governance	

PART-V: GENERAL COMMENTS ABOUT INFORMATION TECHNOLOGY SERVICE IN

DBE

1) What is your personal opinion on the service of information and communication technology in DBE?

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.....

2) What do you think are the root causes for challenges encountered in the provision of ITS in DBE?

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.....

3) Are all relevant staffs are well trained and knowledgeable in the use of the ICTs in financial accounting and reporting and their respective area?

.....
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.....

4) What other IT supports is required to enhance your work unit in particular and in the bank in general?

.....
.....
.....
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.....
.....

5) Please state any opinion, suggestions or comments which you think are very essential for the improvement of ITS in DBE.

.....
.....
.....

Thank You!!

APPENDIX - B

Questions for Interview

1. How do you evaluate the scope or coverage of ITS in DBE?
2. How do you evaluate the level of service quality provided by the Bank's IT unit?
3. Do you think that the Bank's IT service is efficient and effective?
4. Do you think that the bank has sufficiently invested on Information Technology?
5. Do you think that the bank have gained the maximum benefits from the investment in IT? If no, why?
6. What do you think the reason for the current level of performance of ITS?
7. What major actions should be taken to improve the current performance on ITS?

Thank You!!

APPENDIX - C

Sample Size Determining Table

Table 1: Table for Determining Sample Size for a Finite Population

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970