

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
SCHOOL OF INFORMATION STUDIES FOR AFRICA

**STRATEGIC INFORMATION SYSTEMS PLANNING FOR THE
BANKING INDUSTRY: THE CASE OF COMMERCIAL BANK OF
ETHIOPIA (CBE)**

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MAY, 1998

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BANKING INDUSTRY: CASE OF COMMERCIAL BANK OF
ETHIOPIA (CBE)

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BY

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By
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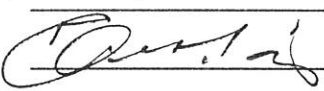
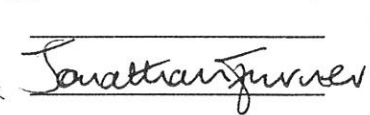
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DEDICATION

To Fekerte little baby and Elizabeth.

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ABSTRACT

Strategic information as a computerized system, that can be applied at all levels of an organization for both internal and/or external purposes, has emerged in the mid 1980s in the evolution of information systems. This study has been carried out in order to suggest strategic information systems plan that can be integrated with the business strategic plans of CBE. For this purpose, a survey mainly through interview and document review, and site observation, has been conducted to collect information about (1) the current infrastructure of information technology, (2) the stage of the information systems at the CBE, (3) the sources of information for strategic planning, (4) the critical success factors of CBE and (5) how the pilot process reengineering and change resistance are handled at CBE. The place of information systems in the organizational structure of CBE has also been examined.

The study revealed that the existing infrastructure of the information technology at CBE is not adequate to strategic applications. There is also strong change resistance for the process reengineering and computerization effort. The key position for the development of information systems, the Director for Information Services, is still vacant. The IT project office is headed by a person of business background. The practical implementation of the Wide Area Network (WAN) project has been delayed due to problems of shortage of technically qualified personnel. Notwithstanding all these, the findings also indicate that the planned investment (Birr 100,000,000) on IT and

strong commitment on the side of top management, CBE has a great potential to accelerate the development of information systems to the highest stage.

In conclusion, the study has also made recommendations with special emphasison on the measures that should be taken to upgrade the human and organizational capacity of CBE to apply IT for strategic purposes.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Banking operations in Ethiopia began at the beginning of this century. The Bank of Abyssinia, the first bank in Ethiopia, was established in 1905 (Belay:1987). It was owned and managed by the National Bank of Egypt which was a British owned Bank. In 1931, the Bank of Abyssinia was reestablished as Bank of Ethiopia. However, the Bank of Ethiopia was closed after the Italian Invasion of Ethiopia. During the Italian occupation of Ethiopia, many Italian banks opened branches in Ethiopia.

In 1942, after the Italian defeat, the State Bank of Ethiopia was established. This bank acted as the central bank of the Ethiopian Government and the country's main commercial bank.

In 1963, a new banking law split the State Bank of Ethiopia into central and commercial banking namely National Bank of Ethiopia (NBE) and Commercial Bank of Ethiopia (CBE). The former was responsible for supervision of banks in the country. On January 1, 1964, CBE started its operation with a capital of Birr 20,000,000.

In 1975, the pro-socialist government (Dergue) nationalized all the private commercial banks in Ethiopia and merged them into Commercial Bank of Ethiopia with the exception of Addis Bank. This has resulted in the complete ownership of the banking system by the Ethiopian Government. In 1980, Addis Bank was also merged with CBE under proclamation No. 184 of August 2, 1984 that has raised its capital to Birr 65,000,000. The other government owned banks are Housing and Saving Bank and Development Bank of Ethiopia.

The new financial liberalization policy of the Ethiopian Government (Pro. No 84/1994 for "Licensing and Supervision of Banking Business Proclamation") has introduced basic changes in the financial sector. The role of the NBE is changed from direct management and supervision to regulation of banks and other financial institutions. The same proclamation resulted in the conversion of Housing and Saving Bank (HSB) into universal bank. The change also enabled other Ethiopians to establish private commercial banks in the form of share company. Currently, there are two state including CBE and four privately owned commercial banks in the country. The private banks are Abyssinia, Awash, Wugagen and Dashen. Two other private banks are also under formation. However, still foreign and foreigners are not allowed to operate and establish banks in Ethiopia. But there are international pressures from organizations such as the IMF and policy indicators that foreign banks may be permitted to establish and run banks within the country in three years.

The new business environment has also necessitated the reestablishment of CBE and other public enterprises. CBE was reestablished in September 1994 as public enterprise by regulation No. 202/1994 of the Council of Ministers. At the time of

reestablishment, the capital was Birr 287,000,000 out of which Birr 182,234,135 is paid up in cash and in kind. The equity of CBE as of September 30, 1997 is Birr 979,000,000.

CBE is organized basically on a functional basis. Per organizational structure, the bank is headed by one President, one Executive Vice President for Operations, four Vice Presidents for Credit and Risk, Finance, Marketing and Corporate Planning, and Human Resources & Property Management. The Director for Information Services is also accountable to the president of CBE with status of assistant vice president.

As of January, 1998, CBE has 168 branches in the country and abroad and also acts as agent for two foreign banks. The branches are grouped into five regional offices, namely: Addis Ababa, North, South, East and West areas. The regional offices are also organized into five district offices as follows:

Addis Ababa Area: Mexico, Meskel, Merkato and Arada Districts.

North: Bahir Dar, Mekele, Dessie, and Debre Markos Districts.

South: Awassa, Sashemene, Nazareth and Wolaita Sodo Districts.

East: Dire Dawa and Harar Districts.

West: Nekemte and Jimma Districts.

The branches are networked almost in all bankable cities in Ethiopia. Foreign transactions are handled by the International Banking Division (IBD). As of September 1997, CBE has 1,254,993 accounts or customers out of which 84,979 are in

current accounts and 1,170,014 are in the savings accounts category. The market share of CBE accounts for 91.8% of deposits and 74% loans in the country. In the loan category, the number of clients (borrowers) is more than 40,000. The bank has about 5,000 employees. The volume of assets is more than Birr 21 billion. All these features make CBE the biggest bank in Ethiopia. CBE is also the only bank in Ethiopia that meets the international BIS capital requirement.

1.2 Statement of the Problem

Usually there are four views about banks: (1) the notion of a bank as department store of finance and a deliverer of financial services, (2) the notion of a bank as an information processor, (3) the notion of a bank as a balance sheet or portfolio, and (4) the notion of bank as a regulated firm (Sinkey:1989). Of course, there is also the view that banks are economies of scale. Banks can achieve economies of scale when different banks are networked to reduce the average processing costs.

In the notion of banks as information processors, banks collect data, analyze it, store, retrieve and use the information for decision making. Failure to investigate, for example, about borrowers will have serious problems including bank failure. A manager of a bank can never think of dominance and continuous success in the market without strong information systems.

In the area of information processing task, CBE was one of the few organizations in the country that started to use electronic accounting machines in early 1960s (Sirak:1990). The 1975 revolution and policy change made banks under the direct

supervision and control of the NBE. Under this system, decision making was so centralized at the NBE. This included the decision to purchase of computers. To this end, in 1982 the NBE acquired NCR V-8568 mainframe computer with more than Birr 3,000,000 for its operations and for use by the banks and the Ethiopian Insurance Corporation. The major user of the computer (about 80%) among the government owned financial institutions was CBE.

The Total Concept of Banking System 2 (TCBS2) from Baton Rouge International , USA was acquired. The operating system is AC-2. Electronic Data Processing Center was organized under the NBE. There were also programmers, systems analysts and technical staff. CBE was able to semi and fully automate savings, current, overdraft, loan and general ledger and foreign transactions.

At the time of computer acquisition, the plan was also to connect the 25 branches of CBE in Addis Ababa, other government banks and the Ethiopian Insurance Corporation in an online system. For the implementation of the plan, 25 telephone lines were obtained under lease arrangement and modems were purchased. But for various reasons in technical and administration areas, the computer service was limited only to four branches (i.e., Addis Ababa, Andenet, Africa Hall, and Finfine branches) and the International Banking Division (IBD). This is also partly because the actual requirements of the systems were by far greater than the estimated requirements in the system study for the mainframe computer acquisition. As an interim solution to the capacity problem, stand alone model 8086 personal computers were acquired in the mid 1980s. However, these again faced problems of disk space due to the high volume of transactions. In many aspects, this project was

not a success story for CBE. And also due to change of workload, the NBE was forced to process data on a shift basis and in some cases during night.

To overcome the limitation of the old system and to cope with the changes in the business environment, CBE has initiated a major bank information technology (IT) project of its own with estimated cost of Birr 100,000,000 about two years ago. The systems development study was started at the same time but the implementation was delayed. While in the process of negotiating with the potential vendors, CBE faced major problem in using/maintaining the existing computer systems. In particular, management of CBE learned that the AC-2 (existing operating system) could fail as early as January 1998. CBE shifted, therefore, from negotiation of full systems to delivery of partial systems for the four branches and the IBD to downsize the closed mainframe data to the open client/server systems.

Under the phased approach strategy, CBE's Wide Area Network (WAN) implementations are divided into various phases. In the first phase, the plan is to solve the problem of year 2,000 by downsizing the COBOL and closed mainframe based data from the four branches in Addis Ababa and one division that performs International Banking to the open client/server network. In phase two of the project, the head office divisions, departments and the other 29 branches in Addis Ababa will be connected to the network. Then, step by step, other branches that have sufficient communications infrastructure are planned to join the network systems. All in all, according to the plan, about 57 branches and the head office will be connected with the WAN in the second and the third phases. The long term plan of the automation project is to connect all CBE branches all over the country under WAN System.

There are by now opportunities and challenges at CBE because of the new information technology project and the changes in the environment. This huge investment in IT brought opportunities to improve customer service, to differentiate its product and to reduce the paper intensive back office work of CBE. It is believed that the IT project can support the major efforts of the bank for continuous prosperity and comparative and competitive advantages if properly implemented. For example, according to Senn (1987), information systems can be used as an offensive resource that provides firms with a means of entering an industry. Services and systems such as personalized savings plans, automatic teller machines and dial-up services are becoming common in the banking industry to lock depositors in particular banks.

However, there are some basic constraints and problems to the use of IT for strategic purposes at CBE.

1. Lack of company experience in IT: As stated earlier, the computer services of CBE have been provided by the NBE for the last sixteen years. CBE has been acting as information user rather than producer. The direct control and supervision of CBE by the NBE is responsible for the low level of IT experience and expertise in the organization at this time. This may also affect the successful implementation of IT in the organization and this is reflected in the delay of IT project implementation for more than one year.

2. Lack of IT professionals: Currently, six programmers, four system analysts, one operations staff and six technicians are employed and transferred from other offices. Thirteen of the nineteen staff are newly employed. It is also extremely difficult and in

many cases impossible to get the qualified staff needed locally to the bank. To solve this problem, professional training for systems personnel and training of trainers of end users were part of the entire IT project package. But the training was delayed because of the delay in the overall IT project.

The possible high turnover of professional and qualified staff is also more likely to happen given the current trends in the country and in the organization. For example, six out of sixteen IT professionals (37.5%) of the NBE left the organization for better salaries in less than four years. The experience of Ministry of Finance of Kenya in this aspect can be good lesson to CBE. In the modernization effort of the Ministry of Finance of Kenya at the end of 1980s and beginning of 1990s, six-month programs produced 20 programmers at a cost of approximately US \$3,000 per person. Turnover rates, however, stood at about 50% (Parish , 1994 quoted in Talero and Gaudette: 1995).

3. Possible risk of loan losses: Loan transactions that are never complete are called loan losses (Sinkey: 1989). CBE has extended more than Birr 15 billion loans in short, medium and long term arrangements. Although no reliable source about the exact volume of loan losses can be identified, there are different figures reported by different sources. But one thing is clear in the Ethiopian banking sector i.e., the problem is serious. The inefficiency of the legal systems and lengthy foreclosure proceedings have also aggravated the problem.

Due to policy changes of the government, the emphasis of CBE is the private sector and in fact the bank's lending to the private sector has shown a rapid growth. For example, the share of the private sector increased from 31% to 56.4% of total lending

between 1992 and 1995. Such a rapid rate of increase in lending to the private sector could have endangered the quality of the bank's portfolio (Harvey: 1995). Harvey further warned that CBE is at risk of expanding its lending to the private sector faster than its capacity to manage this lending efficiently.

In the past, the major borrowers of CBE were the government protected public enterprises which have been profitable until 1988. After 1988, the economy was highly weakened due to the civil war and shortage of hard currency. The public enterprises were able to service their debts and the risk of CBE was very low. Unless there is strong borrower information system about loan applicants, it is strongly felt that the risk of loan losses may increase.

4. Problems of environmental scanning system: The current information for CBE deals in most cases with past financial performance and statistical data about customer accounts, bank transactions, periodic reports and the like. The information is also scattered in the different departments of CBE. But past information is not sufficient on its own for future and strategic decisions. Information about suppliers, customers, rivals, etc., is not adequately and sufficiently maintained in the present system. There are also no reliable sources of information for the bank regarding the micro and macro environmental factors in the country.

5. Lack of experience in end user computing: End user computing provides benefits such as efficiency, effectiveness and strategic advantages if the computers are used for more applications. But computers and their applications are new to the Ethiopian office environment. Because of the then high cost of personal computers and the strict import policy of the previous government, computers were very rare in Ethiopia until

the mid 1990s. At present, some of the staff use personal computers for word processing in administrative routines as is the case in other organizations. Lack of skilled professionals for support with respect to training, maintenance, software tailoring and software packages can create frustration and resistance from the user community. As indicated by a World Bank study on 76 projects in Africa, the human resources and organizational capacity are the major constraints of information technology projects in Africa (Talero and Guadette: 1995).

6. Entry of new competitors to the financial market: There are some policy indicators and international pressures for foreign banks to operate in Ethiopia within three years. New entrants are threats to an established organization since they have new capacity, desire to gain market share and offer similar and substitute products (Hunger and Wheelen:1993). This will be challenging for CBE in its effort to maintain market share and dominance by competing against efficient, information intensive and possible multinational banks that deliver services electronically if the playing field is not levelled by the means of integrated and goal oriented strategic information systems.

Finally, the major challenge to CBE is integration of information systems with other functions of the organization. The delays in computerizing of banking operations and networking of branches may be risky to the success of IT applications in the banking industry of Ethiopia. This is because the project deals with turbulent information technology intervention strategy which is characterized by rapid and constant developments and changes.

To summarize, the problems of CBE with respect to low contribution of IT in the past and problems of the present are mainly due to absence of well established strategic plans and planning.

It is hoped, therefore, that the solution to these and other future problems is to develop a well articulated, goal oriented and integrated strategic information systems plan that will enable CBE to take advantage of competitive and comparative advantages of IT at the industry, firm and strategic levels. At the corporate level, IT affects the key competitive forces which include buyers, suppliers, substitution, new entrants, and rivalry. The generic business strategies such as low cost, product differentiation and market or product niche can be supported with IT strategies. Without proper strategic information systems planning, systems projects are often built piecemeal, resulting in incompatible, redundant and inflexible information systems. Strategic information systems planning (SISP) can also help CBE to take advantage of the opportunities and solve and combat possible threats/problems.

1.3 Justification of the Study

As stated earlier, due to the 1994 financial policy change, new private commercial banks were and being established. Presently, there are two governmentally owned banks -CBE and Construction and Business Bank and four privately owned commercial banks. The private banks are Abyssinia, Awash, Wugagen and Dashen. This new environment in Ethiopia has brought opportunities and challenges to all business organizations including banks. CBE is the largest bank in Ethiopia. But large in size for an organization is not a

guarantee for continuous success and dominance in a globally competitive and technologically driven environment.

Aware of the challenges and opportunities, top management of CBE is making the necessary efforts for the bank's continuous success and growth. CBE has been restructured, business strategic plans have been formulated and huge investments is being made in information technology.

The new automation program is expected to bring significant improvements in the productivity of employees and quality of customer service. But direct automation of the existing process may not bring significant improvement to the productivity of employees. Rather, the existing process must be reengineered.

As part of the effort in improving customer service, CBE has started process re-engineering in one of its branches as a pilot test. Process re-engineering presents ideal opportunities for information systems with exceptionally high payoffs (Tayleru & Guadette:1995). Reengineering helps organizations to reduce cost, to improve customer service and reduce manpower requirements. It is also one means of integrating information technology and business strategic plans. However, the re-engineering process is lengthy, complex and expensive (Ibid.). Unless properly planned and executed, information technology is not a panacea for problems of organizations. There are some problems with information technology such as unforeseen technical problems, lack of co-operation of users and in some cases unrealistic expectations from the users. In developing countries like Ethiopia, these problems are exacerbated with high computer and information illiteracy rate, fear of job security and frustrating change resistance. Users

must be trained not only in how to use application packages but also in how to use computers.

The top management group of CBE went to the extent of bargaining about the change with the managers of the branches in the system conversion program of the four branches and implementation of the process reengineering. The computerization effort that is started and going on at the branches needs integration with CBE at all levels of the organization and echelons of management. The efforts or objectives of management should not be only to obtain information. The problem is not getting the information; computer systems solved that problem years ago (Keyes:1993). Instead, the information and information technology should be used to gain competitive edge and comparative advantages.

The essence of strategic applications of IT are 'to do different things', not simply 'to do things differently' (Grimshaw: 1994). But information technology itself cannot achieve this (Ibid.). To accomplish this, the use of these tools by all employees at all levels of an organization is essential. According to Zuboft (1988 quoted in Grimshaw:1994), the real goal of strategic IT applications is to informate not automate. Informate means to empower the workforce with tools needed to become self directed (Ibid.).

According to Earl (1988), IT can be applied strategically in at least four different ways:(1) to gain a competitive advantage , (2) to improve productivity and performance, (3) to facilitate new ways of managing and organizing, (4) to develop new businesses. Specifically, the major areas of application for information technology as a strategic

resource are customer service, supplier relations, product/service differentiation, new product planning, market segmentation and cost competitiveness.

However, these objectives are not achievable in many organizations because many problems and inhibitors exist. The most common organizational inhibitors are: power and politics in the firm, omission of strategic information from the corporate strategy, the difficulty in assessing tangible contributions, lack of appropriate technical support, high potential start up difficulties and lack of top management support (King with Hufnagel and Grover: 1988 and Keyes: 1993). Most of the problems can be solved and minimized if IT is planned and integrated into the firm's business strategy. Therefore, to solve the problems and take advantage of the strategic benefits of IT, Strategic Information Systems Planning (SISP) is very important.

Information and information technology deserve planning for many reasons. For now, it may suffice to state the factors quoted by Galliers and Baker (1994) (from different sources). According to them, factors influencing the necessity to plan include:

- The unstable and increasing competitiveness of business environment.
- The rate of technological change.
- Resource deployment considerations which result in the need to prioritize information systems (IS) developments.
- The search for a coordinated approach to organization wide IS.
- The need for effective IS.
- The potential impact of IT on business process redesign or process reengineering.

- The need to assist organization change.
- The increasing role of telecommunications and distributed processing in the day-to-day operations of many organizations.
- The need to develop a capital budget for the IT functions.

Although a lot has been said about the benefits of SISP, O'Brien's (1990) exclamation for benefits of SISP is worth mentioning. According to him, planning provides benefits such as the following:

- pinpoints ways to achieve competitive advantage by using information systems as part of business strategic plan;
- stimulates the creative use of information systems;
- redeploys financial and human resources to the most important and strategic information systems projects for the business;
- encourages the integration of existing and future information systems to eliminate information redundancies and inconsistencies and the inefficient use of information systems resources;
- establishes priorities and time frames for development of information.

On the whole, the intention to take SISP as a thesis topic has its basis on the problems, opportunities and the major effort of top management at CBE. First, the huge investments being made in IT felt deserves special attention. Secondly, banks are also one of the key areas of a nation in the modernization effort towards the information age. The successful operations of the banking sector is also highly dependent upon the successful

implementation of information technology. Under the circumstances, the possibility of applying IT for strategic purposes is better considered at CBE than in other organizations in Ethiopia. Lastly, it was learnt that CBE has also formulated business strategic plans which demand another component i.e., Strategic Information Systems Plans.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of the study is to investigate strategic information system planning, including an IT strategy, so as to enable the bank to link and integrate strategic information systems with corporate and other functional strategies for comparative and competitive advantages. The study also aims at examining information resources at CBE to see the bank's organizational capacity to utilize IT for strategic purposes.

1.4.2 Specific Objectives

The specific objectives of the study are to :

- evaluate the technical competence of the bank for effective delivery and use of IT;
- investigate how information resources are organized at CBE;
- identify the critical success factors;
- demonstrate the importance of strategic information systems as applied to the banking sector;
- evaluate the performance of the current information systems;
- evaluate the practice of process reengineering at the Andenet branch of CBE;

- investigate to what extent the strategic business planners are satisfied with the current level of information support;
- identify technologies and applications that support business strategy in the banking operations;
- demonstrate steps required to prepare a strategic information systems plan;
- identify factors that inhibit the use of information resources IT.

1.5 Significance of the Study

The term Strategic Information Systems originated from the work of scholars such as Wiseman in 1985 as an emerging concept in the information age (Earl:1988). This was also the time in which strategic planning had reached its highest development stage from the work of Michael Porter. In the 1980s and 90s, a lot had been done by prominent scholars on the strategic role of information/information technology to organizations. Strategic information systems change the goals, operations, products, services or environmental relationships of organizations to help them gain an edge over competitors (Laudon and Laudon: 1994). The strategic systems and business plans must be integrated so that information technology can support corporate , strategic business units (SBUs) and operational or functional levels of business strategies.

According to Earl (1988), a strategic information system presumably either supports or facilitates a particular business strategy or some facet of it. To this end, the study attempts to advocate the strategic role of information and information technology to support the strategic plan of CBE. It is believed that integrating the Strategic Information Systems Plan with the strategic business plans will generate synergetic effects on the performance of the organization. A banker without a strategic plan is like a chef without a recipe, a

home builder without a blueprint, or a coach without a game plan (Sinkey: 1989). Furthermore, strategies that omit information technology are outdated ones. The first step in strategic planning is to determine where is the organization. To assess this, bankers should gather data about the competitors, customers, clients, demographics, economic data, legal environment etc. and process data to generate invaluable information. Then, the information can be used for decision making and taking appropriate actions. The value of an organization's information system is often expressed in terms of timely and improved quality of decisions.

Once managers and strategic planners know where the organization is, they can decide where and how the organization is going and should go to its desired state. In this connection, information can help managers in the proper allocation of its limited resources. Failure to include information resources in the strategic planning exercise will likely result in a poor allocation of resources, with too much going into poor businesses that should be getting little or no support and too few devoted to good businesses that should be getting the lion's share of development resources (Synott: 1987).

It is expected that the outcome of this study will help the strategic planners at CBE improve their strategic planning processes. It can also benefit other banks and organizations in Ethiopia by causing the awareness of the strategic role and benefits of information and information technology. This said, however, as Nolan (1997) stated, no company is the same- so every strategy is unique.

It is anticipated that the study will address the information technology risks and problems that occur when an organization does not improve its human and organizational capacity to effectively use and manage information technology.

1.6 Scope and Limitations of the Study

Strategic Information Systems Planning (SISP) is a multidimensional task. There is no single best methodology to address all aspects of information technology simultaneously using one model. The outcome of SISP is dependent on the model used. Some methodologies result in applications portfolio, others in project prioritization and still others in data architecture. Traditional and conventional methodologies do lack sufficient linkage with business objectives and strategies. Their emphasis is on the development of software. Methodologies such as Nolan's stages growth model address the stage of information systems in an organization. On the hierarchical aspect, the strategic information systems planning models incorporate the corporate, strategic business units (SBUs), and operational strategies. But, CBE is organized on functional bases and there are no strategic business units(SBUs) and their strategies.

SISP can also be classified from the process perspectives. SISP is a cyclic process, producing actions that cause results and learning from results and making adjustments (Burch and Grudnitski: 1989). However, this study does not address the functions of executing of plans and monitoring of the results. The scope of the study is limited to addressing the major variables such as how information resources are organized, the communications, the software and hardware resources, systems development methodology, end user computing and systems personnel. As such, the basic emphasis of the study is on the strategic applications of IT for banking at the industry, corporate and functional levels.

Because of the limitations of time and the complexity of the task, the work does not deal with corporate data architecture of CBE. This is because data architecture aspect of CBE by itself demands special methodology, many man-days and a comprehensive study.

1.7 Methodology

1.7.1 Data Source and Collection Methods

The following data collection instruments have been used in the actual conduct of this study.

Document Analysis: Documents of CBE such as strategic plans, organization charts, tender document for IT, annual statistical reports, job classification and specifications of systems personnel etc., are examined to get the necessary facts about the organization and its past performance and future plans.

Interview: Formal and informal interview methods were used to get the necessary facts. The formal interview method was used in gathering facts about critical and important variables from the key personalities of CBE. The Vice President of the bank, the Assistant Vice President for Corporate Planning, the Head of IT project, the team on process re-engineering, the Head for Strategic Planning, the Head of the Credit information were interviewed. The Deputy Manager for EDP of the NBE was also interviewed to get facts about the past experience and problems of the bank in IT.

The need arose also to clear out the confusion among the different concepts such as information strategies, information technology strategies and strategic information systems. The concepts of competitive and comparative advantages that are the major applications of strategic information systems had to be differentiated and examined. The concepts of strategy and strategic planning were also essential to the thesis work.

Review of the Literature was found to be the only effective means to perform such tasks. In addition, literature review has been used to supplement and substantiate the information collected by other methods. The documentary sources of information consulted and used are listed in the references.

Books, journals, publications and other materials are used from the libraries of Addis Ababa University, SISA, the British Council Library in Addis Ababa, UNECA Library, Ethiopian Management Institute, the Addis Ababa Commercial College, Library of the Ethiopian Science and Technology Commission, the Institute of Banking and Insurance of the NBE as the secondary sources of information for the study. The role of Internet as a source of data for this nascent topic was extremely important though it was difficult to get full-text documents.

Observation: Both scheduled and unscheduled observations were also made to supplement the other methods of data collection. In particular, observations were made to understand the customer service procedure and to see the effect of process reengineering on the customer service.

1.7.2 Data Analysis

The data collected from different sources were analyzed using tables and figures. The facts gathered and consolidated have been used to argue and support the objectives of the study.

As stated earlier, the subject SISP is not mature and no appropriate single methodology has been developed to address all the variables. Authorities in the field such as Earl and Galliers suggest the use of different methods. Most of the methods are developed from scholars with business backgrounds and IT expertise and the researcher believes they are appropriate for the case of CBE.

Synott's (1987) Information Resource Architecture Model has been used to evaluate the strengths and weaknesses of information resources at CBE. This model is used to evaluate the IT infrastructure of CBE. This is the only model the researcher has come across that tries to treat the components of information technology one by one. The stage of information systems of CBE is analyzed using the Nolan's stage model that has been modified by Galliers as revised stage growth model. The model has been helpful to see the stage of information systems of CBE. The business process reengineering is also used to evaluate the practice of process reengineering at the Andenet branch of CBE. Finally, the Critical Success Factors (CSFs) of Rockart is used to determine the most important variables of the CBE at the corporate level.

1.8 Organization of the Thesis

The thesis consists of six chapters. The first chapter provides background information, statement of the problem, justification of the study, objectives, significance of the study, the methodology used and organization of the study.

The second chapter deals with the different concepts in the subject area and discusses strategic information systems planning methodologies. The third chapter reviews the current strategic planning efforts at CBE and the current information resources. Chapter four assesses the existing situation with respect to information resources. The fifth chapter summarizes the major problems of the bank and gives special treatment and suggests a possible strategic plans.

The final and sixth chapter provides conclusions and recommends actions that may be taken by CBE to improve the existing situation and to shape future direction.

CHAPTER TWO

STRATEGIC INFORMATION SYSTEMS PLANNING- AN OVERVIEW

2.1 Introduction

Information systems play vital role in the strategic success of organizations. Information systems, therefore, must be managed in a planned manner. The purpose of this chapter is to give further background on the planning and planning methodologies as applied to strategic information systems. Strategic information systems planning is one and an integral component of overall corporate strategic planning.

Before we proceed to the detailed discussion of strategic information systems planning (SISP) methodologies, certain concepts such as planning, strategic planning, strategic management and strategic information systems need are explained.

2.2 Evolution of Strategic Planning in an organization

Planning has been defined by various authors in different ways. According to O'brien (1990), planning is deciding what to do before you do it. For Zikmund and D'Amico (1996), planning is the process of envisioning the future, establishing goals and objectives, designing organizational strategies and tactics to be implemented in the future. In whatever way it is defined, planning is an extremely important component

of success and continuous existence of organizations. Planning helps organizations to take advantages of opportunities and combat threats of the external environment. Planning helps organizations to evaluate their internal strengths and weaknesses and take corrective actions.

There are also different types of planning. These include strategic planning, tactical planning and operational planning based on the hierarchy of organizations. If we classify planning based on time, there are short, medium and long-term planning.

Organizations pass different stages of planning before they reach the strategic planning level. According to Kotler (1988), businesses pass through four stages on their way to sophisticated planning. These are the unplanned, budgeting system, annual planning, long range and strategic planning stages.

Unplanned stage: When organizations are first established, managers are very busy with their day-to-day operations and as a result they may not have time to plan. For small organizations, there are usually no formal plans as well.

Budgeting system stage: Companies may install a budgeting system to control their expenses. This can help managers to improve the control of cash inflows and outflows.

Annual planning stage: At this stage, management recognizes the importance of plans. One possibility is to use the top-down planning approach. Under this system, top management sets goals and plans for all lower level management. The opposite of this approach is the bottom-up approach. In this approach, the various units of the organization develop their own plans and submit them to higher level managers for approval. The third approach is what Kotler calls goals-down-plans-up. The top

management sets corporate goals. The lower level managers prepare their own plans which should be approved by the top management.

Long range planning stage: Long range planning usually involves looking three to five years (or more) into the future (O'brien: 1990). At this stage, management recognizes the importance of long range planning to precede the annual plans. The long range plans must be reviewed to see the validity of assumptions about the external environment. Long range planning could be strategic planning if it considers the strategic issues that should be considered for strategic planning. According to James (1992), if vision and environment have not been addressed, then long-range plan is not strategic but tactical plan.

Strategic planning stage: According to James (1992), there are two key elements in strategic planning. The first is strategic vision and the second one is a thorough understanding of the business environment. The environment includes both the internal and the external environment. The external environment contains the micro or task and macro environmental elements.

Strategic planning may not be necessarily long range planning. A major change in an organizational mission or direction may require a plan that at first cannot be extended beyond a year or two, at which point experience can point towards a clear future(Ibid.). This is an example for strategic decision but not a long range plan.

Strategic planning is the responsibility of top management within an organization. Strategic plans are general and far reaching and are determined at the top levels of

the organization (Koory and Meldey: 1987). This is because strategic planning is extremely too important to delegate to lower level managers.

Such plans exist at three levels within an organization: at the corporate, at strategic business units (SBUs) and at operational or functional levels. According to Johnson and Scholes (1989), the corporate level strategy is concerned with what types of business the company should be in. In the business strategy level, the strategy deals with how to compete in a particular market (Ibid.). The SBUs, however, exist in divisionalized corporations and not in functional organizations. As CBE is organized in a functional approach, there are no strategic business units and plans at this level. At the operational or functional level, the strategic plan is concerned with how the different functions of the firm such as marketing, finance, information technology and production etc., contribute to other levels of the strategic plans.

A recent addition to the evolution of planning is the strategic management. According to Tilgman and Hickey (1989) (quoted in Hunger and Wheelen: 1993), strategic management seeks to manage all resources to develop competitive advantage and to help create the future. It contains strategic planning, implementation and evaluation and control. By 1990, most common corporations in the developed countries converted their strategic planning to strategic management. At this stage, most of the managers in an organization become strategic thinkers and almost all managers understand strategies (Ibid.).

2.3 Evolution of Strategic Information Systems

In the past, information was often considered a necessary evil associated with the bureaucracy of designing, manufacturing and distributing a product or

service(Laudon and Laudon : 1994). The system was designed for accounting and paper processing activities. These first systems were batch systems and were using limited input and output media (Somogyi & Galliers: 1994). This was common in the 1950s.

By the 1960s, information was recongized as a tool for management support. The information systems of the 1960s and 1970s became management information systems (MIS). The MIS started to generate information on a periodic basis on functional areas such as production, finance, inventory, accounts payable and the like. During this period, most companies changed to on-line systems for timely information.

In the 1970s and early 1980s, information systems started to address the information needs of management and management control. The information systems such as decision support systems (DSS) and executive support systems (ESS) emerged during this period. The objectives were to assist and speed up the decision making process. By the end of the 1970s, the relevance of data clearly emerged, being viewed as the fundamental resource of information, deserving treatment that is similar to any other major resource of a business (Somogyi and Galliers: 1994).

By the mid 1980s, the concept of information also changed. Information has been regarded as a strategic resource, a potential source of competitive advantage (Laudon and Laudon). A summary of the evolution and changing concepts of information systems is given in Table 2.1.

Table 2.1 Summary for changing concepts of Information Systems (Source: Laudons).

Time period	conception of information	Information systems	Purpose
1950-1960	Necessary evil Bureaucratic requirement A paper dragon	Electronic accounting machines (EAM)	Speed accounting and paper processing
1960-1970s	General purpose support	Management Information Systems (MIS) Information Factory	Speed general reporting requirements
1970s-1980s	Customized management control	Decision support Systems (DSS) Executive Support systems (ESS)	Improve and customize decision making
1985-2000	Strategic resource competitive advantage strategic weapon	Strategic systems	Promote survival and prosperity of the organization

Source: Laudon and Laudon . 1994.

As stated, the major task for many information systems (IS) departments in the early 1980s was making information available (Somogyi and Galliers: 1994). The problem of information transfer and the need for exchanging information turned the interest of organizations towards telecommunications. This has resulted in the convergence of computing and telecommunications to create information technology. Due to the major improvement in information technology, the role of systems professionals and users changed. The users started to develop their own applications or systems. As a result of this, the role of systems professionals changed to one of support, advice and help. Other factors such as the management of people become extremely very important in the late 1980s and 1990s as part of strategic information systems

It was also realized that the introduction of information technology can not solve organizational problems. The solution and the impact lie on how and why the information technology is used. Due to this, many companies started to follow

planned approach in dealing with IT. Concepts such as strategic information systems and strategic information systems planning emerged. The role of information technology also moved from the back office to the front of organizations. The role of information and information technology also changed to competitive and comparative advantages of organizations.

According to Laudon and Laudon (1994), strategic information systems often change the organization as well as its products, services and internal procedures into new behaviour patterns. The strategic role of information systems demanded also the upgrading of the status of systems personnel to the higher levels of the organization. This brought drastic changes in the knowledge requirements of systems personnel from technical knowledge to business concepts.

The need to integrate the business strategies and information systems strategies arose for their synergetic effect on the performance of the organization. Senior managers must fully integrate IT with corporate strategy and business operations (Delonas: 1997). However, according to Delonas, many companies invest their money on administrative areas. Such misdirection happens because either management does not understand the strategic capabilities of IT or the IT function does not recognize strategic priorities (Ibid.).

2.4 Strategic Information and Information Technology.

Nowadays, information is a resource like capital, labour or land. It has a value. According to Davis and Olson (1984), information is data that has been processed into a form that is meaningful to the recipient and is of a real or perceived value in

current or prospective actions or decisions. Information is a resource because it has a characteristic similar to such other resources as capital, manpower, and equipment. Synott (1987) explains, information has value (productivity, management support, and competitive value), costs money (to collect, store, process, and disseminate), has qualities (timeliness, accuracy, form), and is controllable (can be accounted for and managed). Information can be used as a strategic resource to support overall business strategy and to strengthen competitive position (King with Hufnagel and Grover: 1988).

Information provides strategic advantage for organisations when it is used to make better strategic planning and decisions. In the writings of many scholars, information and information technology seem to be discussed interchangeably. But the two concepts are different. We may refer the work of King with Hufnagel and Grover (1988) to make the distinction between the two concepts. They define information technology as a resource that is fairly well defined and readily measurable - in terms of the number, memory capacity, transmission speed, processing capacity, etc. of computer based systems. Information technology includes the hardware, software, telecommunications and other peripherals.

For Luftman, Lewis and Oldach (1993), information technology has become the generally accepted term that encompasses the rapidly expanding range of equipment (computers, data, storage devices, network and communications devices), applications, and services (e.g., end-user computing, help desk, application development) used by organizations to deliver data, information, and knowledge. On the whole, IT is the hardware and software which is used to generate information. Information technology opens up new ways of doing business better, faster, and

cheaper (Synott: 1987). This is what makes information technology a competitive weapon.

According to King with Hufnagel and Grover(1988), to be a strategic resource, the information resources application must be a significant element of the business strategy. Laudon and Laudon state, information is used to defeat and frustrate the competition.

2.5 Strategic Information Systems Planning Methodologies

A lot has been said about the competitive and comparative advantages of information technology. To achieve these benefits, planning is extremely important. Different methodologies have been developed with different emphasis. The use of some models such as Business Systems Planning of IBM result in corporate data architecture. Other planning models result in prioritized portfolio of information systems applications.

According to Galliers (1994), when one considers the range of SISP approaches that can be used, it is not difficult to expect different types of outcomes (e.g. applications portfolio, database architecture, extent or type of IT investment required). Authorities on the subject such as Earl (1988) suggest use of multiple approaches to SISP.

In many organizations, the emphasis of SISP has been on the IT strategy rather than IS strategy. Earl (1989 quoted in Galliers: 1994) makes useful distinction between the two concepts. IT strategy is more concerned with how to provide required information, while IS strategy should be concerned with understanding what is

required. IS strategy should contain not only IT strategy but also such organizational issues as change management and human resource strategy associated with IS (Ibid.). The IS strategy is concerned primarily with aligning IS development with business need and seeking competitive advantage from IT (Earl: 1988). As a result, IS strategy is formulated when the business strategy is developed at the highest level of the organization such as at the strategic business units level. IT is organized equivalent to the functional levels.

For the purpose of this study, three basic approaches are used for different purposes. The methods are selected based on the objectives of computing in place at CBE. According to Schultheis and Sumner (1988), the kinds of computing objectives that can be achieved have to do with alignment and impact. Alignment refers to information systems designed to improve internal performance by cutting administrative costs or streamlining paper work operations (Ibid.). For example, banks can achieve high level of efficiency for the paper intensive back office work by the use of IT. The other objective is related to impact. Impact refers to information systems that distinguish the enterprise from competitors, using some of the competitive strategies (Ibid.). Since the study deals with the possibility of using IT for either one or both of the objectives, it is necessary to select appropriate models.

For the alignment objective of computing, we use Nolan's Application Portfolio analysis (applications) model. Since some limitations have been identified in the earlier model of Nolan stage growth, Galliers (1994) has revised it and that model is used here.

For the second objective of computing, Parsons' (1983) three level effect of information technology is used. Parsons, based on Michael Porter's competitive forces model, has introduced a three level framework. These are industry, firm and strategy levels. The model is used to see the current and the potential effect of information technology on the competitive advantage of the organization.

To identify the computing objectives of CBE, the Critical Success Factors suggested by Rockart (1979) (quoted in Davis and Olson 1984) is used. This is also used to discover the most critical factors of CBE. Based on the critical factors model, the information requirements of CBE in the major area i.e., borrower is discussed.

The remainder of this chapter attempts to discuss briefly the stage of growth model to serve as a background to subsequent chapters where the models are applied.

2.5.1 The Stages of Growth Method:

Nolan has developed a four stage model in 1974. The stages were initiation, contagion, control and maturity stages. Nolan himself, however, revised the model into six stages by 1979. The modified stages were initiation, contagion, control, integration, data administration and maturity (Davis and Olson:1984). Nolan's stage model classification was based on level of application portfolio, Data Processing (DP) organization, DP planning and control and user awareness. The Nolan's stage analysis and the revised stages of growth model (cited in Schulthesis and Sumner: 1989) are discussed here below.

Stage I, Initiation: At this stage, cost of effective transactions such as accounts receivable and payroll are introduced in automation areas. The major objective is cost minimization.

Stage II, Contagion: More applications occur and technical people are given go ahead signal to pursue for more applications or automation projects. Since control is non-existence, cost of operations and personnel increase significantly and these will become the concern of management. The major objective at this stage is proliferation of applications.

Stage III, Control: At this stage, management establishes steering committee and with user participation and involvement, projects are prioritized for applications development. MIS becomes a formal department and exercises control on internal activities. Between stages III and IV, transition occurs as shift from managing computer to managing data as a resource. The main achievement is to upgrade documentation of systems.

Stage IV, Integration: At this stage, there will be formal planning and control of systems or major effort will be made to integrate information systems by using database and telecommunications technologies. The major objective is to upgrade existing applications using database technology.

Stage V, Data Administration: This is a stage where the organization moves processing of information based on individual files to multiple applications of databases. The applications portfolio is towards development of common databases.

Stage VI, Maturity: Here, the organization moves from technology management to data resource management. Upper-middle and senior managers recognize the critical role of information systems. Formal planning and control activities are introduced so that organization plans will be supported by information systems. At the final stage, joint responsibility between Data Processing and users become common in the organization. The major emphasis of this model is the amount of expenditure on IT at different stages.

2.5.2 Revised Stages of Growth Model

As indicated earlier, the original (Nolan) model was revised by Galliers. And the revised model was based on the seven 'Ss' model of Pascale and Athos (1981 quoted in Galliers:1994) Consult for the view of organization structure. According to the seven 'Ss' model, organization structure is viewed as the relationship among these variables with superordinate goals at the centre of the relationship.

Table 2.2: The seven 'Ss' (Pascale & Athos, 1981 quoted in Galliers, 1994)

Strategy	Plan or course of action leading to the allocation of firm's scarce resource, overtime, to reach identified goals.
Structure	Characterization of the organization chart (i.e. functional, decentralized, etc.).
Systems	Procedural reports and routine processes such as meeting formats.
Staff	'Demographic' description of important personnel categories within the firm (i.e., engineers, entrepreneurs, MBAs, etc.). "Staff" is not meant in line-staff terms.
Style	characterization of how key managers behave in achieving the organization's goals; also the cultural style of the organization.
Skills	Distinctive capabilities of key personnel or the firm as a whole.
Superordinate goals	The significant meanings or guiding concepts that an organization imbues in its members. Superordinate goals can be also described as the shared valued or culture of the organization (literally, super goals in an organization).

The brief descriptions of the revised six stages of Galliers are given below:

Stage 1 **AD HOC RACY**: this stage describes uncontrolled, ad hoc approach to use of IT; Stage 2 **STARTING THE FOUNDATIONS** marks the beginning of the ascendancy of an IT 'priesthood' in the organization; Stage 3 **CENTRALIZED DICTATORSHIP** begins control on the increasing cost of IT expenditure.

In stage 4 **DEMOCRATIC DIALECTIC AND CO-OPERATION**, the attempt is to move IT towards integration and co-ordination; stage 5 **ENTREPRENEURIAL OPPORTUNITY IT** begins to provide a strategic benefit in its own right. The major operational systems are established, the system ran smoothly and provide good

opportunity to build strategic systems; stage 6 **INTEGRATE HARMONIOUS RELATIONSHIPS**, IT is fully embedded and integrated throughout every aspect of the organization. There is also harmonious relationship between the IT personnel and other staff in the organization. The summary of the revised stages model and its features at the different stages are as listed in Table 2.3 using the seven 'Ss'.

Table 2.3 A revised 'stages growth model (Sutherland & Galliers, 1989, quoted in Galliers and Sutherland, 1994.)

Element	Stage					
	1	2	3	4	5	6
Strategy	Acquisition of hardware, software, etc.	IT audit Find out and meet user needs (reactive)	Top down IS Planning	Integration, co-ordination & control	Environmental scanning & opportunity seeking	Maintain comparative Strategic advantage Monitor futures Interactive planning
Structure	None	Label of IS often subordinate to accounting or finance	DP processing department Centralized DP shop End users computing free as stage I	Information centres Library records, OA etc. in same unit information services	SBU coalition(s) (many but separate)	Centrally co-ordinated coalitions (corporate & SBU views concurrently)
Systems	Ad hoc unconnected operational multiple manual IS Uncoordinated concentration in financial systems	Many applications Many gaps Overlapping systems Centralized Operational Mainly financial systems Many areas unsatisfied Large backlog Heavy maintenance load	Still mostly centralized Uncontrolled end user computing Most business activities covered Database systems	Decentralized approach with some controls, but mostly lack of co-ordination Some DSS ad hoc Integrated office technology	Dentralized systems but central control & co-ordination Added value systems (more marketing oriented) More DSS-internal, less ad hoc Some strategic systems (using external data) Lack of external & internal data integration integration of communications technologies with computing	Inter-organizational systems (supplier, customer, government links) New IS based products External-internal data integration

Staff	Programmers/ contractors	Systems analysts DP manager	IS planners IS Manager Data Base Administrator Data Administrator Data Analysts	Business analysts Information Resource Manager (Chief Information Officer)	Corporate/business s/IS planners (one role)	IS Director/member of board of directors
Style	Unaware	Do not bother me (I am too busy)	Abrogation/delegation	Democratic dialectic	Individualistic (product champion)	Business team
Skills	Technical (very low level), individual expertise	Systems development methodology	IS believes it knows what the business needs Project management	Organization integration IS knows how the business works Users know how IS works (for their area) Business management (for IS staff)	IS manager- member of senior executive team Knowledgeable users in some IS areas Entrepreneurial marketing skills	All senior management understand IS and its potentialities
Super- ordinate goals	Obfuscation	Confusion	Senior management concern DP defence	Co-operation	opportunistic Entrepreneurial Entrapreneurial	Interactive planning

2.5.3 Parsons' Impact of IT

The importance and the impact of information technology differ from industry to industry and from firm to firm. According to Parsons (1983), in some firms, IT is a top-level strategic concern; in others, it is basically perceived as an administrative convenience. IT has many application to the financial services in general and banking operations in particular. In this connection, Luftman, Lewis and Oldach (1993), note following as most representative services in the banking industry:

- Automated teller machines support 24 hour services.
- cash management systems provide comprehensive views of a client's financial position.
- electronic funds transfer is eliminating the need for traditional checks.
- imaging systems automate handwriting recognition and reduce paper usage.
- knowledge-based systems speed credit authorization or claims adjudication reviews.

In this part of the chapter, we shall see the impact of IT at three levels of the firm: industry level, firm level and strategy level. This will help us to see the importance and the strategic relevance of IT to an organization at the three levels.

2.5.3.1 Impact at the industry level

Depending on its importance in the industry, IT changes the industry's products and services, markets and production economics. If we see the banking industry from this perspective, IT is a means of product and service delivery to the customers. As to Earl

(1988), a firm in a delivery sector becomes exposed if its computer network fails, was inefficient if it did not automate its internal operations, and inflexible in its product development and customer services if it had poor infrastructure.

Electronic means of distribution of services/products can reduce the cost of production and distribution as well as time. This is in effect cost reduction in the production of goods and services. But to utilize all the applications of IT to the banking industry in Ethiopia, the skills of employees, the telecommunications infrastructure, the level of computer literacy of customers etc., are major barriers. But the application and the technology must be introduced to the Ethiopian banking industry. Otherwise, the global competition will put CBE or any other bank in Ethiopia at a competitive disadvantage.

2.5.3.2 Impact of IT at the firm level

At the firm level, the impact of IT is determined by the specific competitive forces facing the firm (Parsons: 1983). The competitive forces, according to Michael Porter (1980) (cited in Senn:1987), are buyers, suppliers, and substitution, new entrants, and rivalry. IT affects these key competitive forces and is used to create competitive advantages.

The use of IT can change the relationship between the firm and its suppliers. When the bargaining power of suppliers (depositors) increases, they may demand more price (interest). In this case, IT can be used to reduce the costs of operations so that profit margin may not be low. In other words, IT can be used as a leverage to reduce the costs of operations and for the profit margin not to decline. Less paperwork, fewer redundant operations, reduced downtime translate into greater productivity, more efficiency, and

an improved bottom line when companies put automation and technology to work in their back office operations (Bank of America: 1996).

IT also affects the buyer relationships with the firm. New distribution channels such as ATM, point-of-sale terminals (POS) and electronic home banking are becoming very common in distribution systems. If the bank uses IT to improve the customer service level, the switching cost for customers will be high and customers remain loyal to the organization. For example, automated retrieval and spreadsheet download of account information enables companies to import data directly from their bank's reporting services into other applications such as Lotus 1-2-3 and Microsoft Excel (Ibid.). This will avoid the rekeying of data and saves time and improves reliability.

In any industry, there are actual and potential substitute products. The existence of cost effective substitute products can reduce the profitability of the company. Replacement of products (e.g. ATM over bank tellers) can also increase productivity.

New entrants are always threats to established organizations. New entrants have new potential, need for some market share and thus they are aggressive. The common strategy may be to establish entry barriers. Entry barriers basically do have different forms and they give more favorable condition for the existing company than for a potential entrant. One means of entry barrier is the use of information technology. But creating entry barriers to new entrants could be against the interest of the general public and the government in Ethiopia. This is because the banking industry is in its infancy and the sector has been suppressed for the last two decades. Further suppression of the

sector by creating entry barriers may not be an acceptable strategy from the public interest aspect.

According to Parsons, IT can be used as a strategic element to deal with new entrants, both offensively and defensively. Senn (1987) stated that information systems can be used as an offensive resource that provides firms with a means of entering an industry. IT is a defensive or tactical weapon if it is used to meet basic data processing requirements and various reporting obligations, and to help the company stay on track, to help the company survive (Burch and Grudnitske: 1989).

IT also affects the company's relation with the rivalry. There are different forms of rivalry in the different industries. A very intense rivalry depletes the industry of some potential profits, because actions detrimental to the entire industry may occur as competitors struggle to death for an advantage (Parsons: 1983). For firms to operate effectively over time, they need good competitors. According to Parsons, having proper competitors allows a firm to earn more profits, develop more new markets, and create better entry barriers than it could alone. Competition, as it is believed, promotes efficiency, increases awareness to opportunities and causes management to develop some vision and strategy. Management, therefore, must develop and establish the time to co-operate, to compete and the method of doing it effectively.

The use of IT in competition related areas is unlimited and firms must make IT strategy as part of their business strategies. On the other hand, if strategic systems planning

seems to produce few competitive advantage ideas for IT, either the current methods are deficient or planning is inappropriate for idea generation (Earl: 1988).

2.5.3.3 Impact on the Strategy

According to Michael Porter (1980 quoted in Senn:1987), the three generic strategies of firms are to provide low-cost products or services, to practice product differentiation, and to focus on a market niche. Business organizations can follow one or more of the three generic strategies. IT can play extremely important roles in low-cost leadership, product differentiation (product that is unique), focus on market niche (geographic area, product line or customer groups).

For instance, as stated earlier, banks can use cost minimization strategy by improving the paper intensive back office processes through the use of IT. The cost of processing and transmitting transactions can be reduced. Companies that concentrate on cost minimization strategy should use IT to reduce costs. This could be possible either by improving the productivity of labour or utilization of other resources. The basic approach to cost minimization is to improve the efficiency of the functions of the firm such as operations, marketing, distributions, administration and the like. Lower-cost leadership offers greater flexibility in dealing with suppliers who raise their prices to the firm, as well as buyers wishing to drive prices down (Senn: 1987). As a result, most firms use cost minimization as the basic and viable strategy for long lasting competitive advantage.

In product differentiation strategy, the product will have unique characteristics or features. Differentiation can be achieved in a variety of ways: brand identification, superior quality of service or technological innovation, a vast dealer network, and so on (Synott: 1987). IT can support a differentiation strategy in various ways as mentioned in typical IT applications in the banking industry. But good example to product differentiation strategy is cash management. Cash receipts and disbursements of organizations can be consolidated from the different branches of the bank so that firms can access and download their cash balance to their own applications. This will help the customers of the bank to get up-to-date information on their cash balances. More number of customers are demanding this service from the bank and the bank has recognized this as problem of depositors.

The strategy of the firm can focus on a market niche. A niche is a focal point for a product or service: it is a subset of the entire industry or market (Senn: 1987). According to Synott (1987), companies define their niches on three dimensions: customer, product and geography. That means, niches on customer segments, specific locality and unique, scarce or low product. Companies that follow concentration on one or more market niches aim to serve a specific buyer group, segment product line or market or geographical area. The firm should believe that it is better to serve a narrow target area than on trying to compete in the entire industry.

A certain bank, for example, may decide to concentrate on construction area or industrial area or consumer market rather than competition in the entire market. Information can be used to analyze and find the right customer and geographic area. Banks can install ATMs at the airport, gasoline stations, supermarkets and in the branch

banks at Addis Ababa. This strategy would serve customers who can use it or customers residing at Addis Ababa and the like. For example, prolonging the eight hours of five and half days service to 12 or 24 hours per day and 7 days per week can change the

customer service level in a revolutionary way. This will also enable it to differentiate the products of CBE from that of the current competitors. Within the market niche, companies can achieve low cost, product differentiation or can minimize the possibility for customers to use substitute products.

CHAPTER THREE

INFORMATION RESOURCES AND STRATEGIC PLANNING AT CBE: AN OVERVIEW

3.1 Introduction

In this chapter, an attempt is made to review existing information resources and the strategic planning at CBE. Information obtained during this study on various issues including the establishment, the IT project, information resources such as the organization of information resources, systems personnel, hardware and software, user computing are briefly discussed. Critical success factors, borrower information systems, strategic planning and sources of information and process reengineering are also reviewed.

3.2 Purposes and Objectives of CBE

According to proclamation No. 184 (1980), the objectives of CBE have been stated as:

- to extend commercial banking services throughout the country;
- to encourage the mobilization of savings;
- to extend loans, credits and other banking facilities to any person for specific purpose and periods;
- to spread widely banking habits among people.

As part of reestablishment process of public enterprises by the new government, CBE was re-established as public enterprise per regulation No 202/1994 of the Council of Ministers of Ethiopia. According to regulation No. 202/1994, the purposes of CBE are:

- to accept savings, demand and time deposits;
- to draw, accept, discount, buy and sell bills of exchange, drafts and promissory notes payable within or outside Ethiopia;
- to issue letters of credit;
- to provide short and medium-term loans and within a limited ceiling, long-term loans;
- to buy and sell foreign exchange;
- to buy and sell negotiable instruments and securities issued by the government, private organizations or any other person;
- to accept and keep safes securities, jewels and other valuables;
- to issue cheques and traveller cheques, and generally deal in cheques;
- to act as an agent for persons and, in this capacity, engage in the sale of money and shares;
- to participate in equity investment;
- to engage in such banking activities as are customarily carried out by commercial banks.

The objectives of CBE as established by its management are:

- secure high business growth and maintain market share in the Ethiopian financial market;
- improve profitability by providing high quality financial product/services;
- maintain leadership in product and service development;

- establish credibility and create favourable image with correspondent banks all over the world;
- assume technological leadership;

As can be noted, the current objectives of CBE reflect the direction of the financial sector of the country and the government's intention as to what it intends to do with its bank. The current profitability principle of public enterprises in Ethiopia is also reflected in the objectives of the CBE.

The existing products/services of CBE are savings, fixed or term deposit, current, overdraft and foreign currency accounts. In the loan category, there are short term, agricultural, medium term, personal, special and merchandise loans. Money transfer-domestic and international, Documentary Letters of Credit, Foreign Exchange and Equity Financing, Inward and Outward Bills of Collections are also services offered by CBE. The bank extends loans for short term financing in the areas of domestic trade, export/import, industry and services, and agriculture. The other major and new categories of loan classification are project financing in the areas of agriculture, industry, transport and service. The project financing loans are mainly extended to new establishments and privatisation efforts of the Ethiopian Government for short, medium and long terms. CBE is also involved in cofinancing of long term loans with the Development Bank of Ethiopia (DBE).

3.3 Information Resources of CBE

3.3.1 The IT Project :an overview.

As stated earlier, CBE was one of the very few institutions in Ethiopia that started to use computers for its accounting activities back in the early 1960s. However, a major computerization effort to connect all branch banks in Addis Ababa in an online system was started in 1982. Model NCR 8568 mainframe computer was acquired in the same year. The general objective of this project was to connect all financial institutions in Ethiopia under the NBE system. With this project, only four branches and the IBD were connected to the mainframe computer in an online system through dedicated telephone lines. The five branch offices operated NCR 2262 financial terminals and NCR 7900 non-financial terminals for data entry and inquiry. The applications software running on the mainframe was Total Concept Banking System 2 (TCBS2) from Baton Rouge International, USA. The operating system was AC-2. In addition, locally developed software applications were used on the 8086 personal computers in about 21 branches at Addis Ababa. The system processes the data both in online and batch processing procedures. CBE continued to use the computer services of the NBE under cost sharing basis until the end of 1997.

Recently, CBE has started to revitalize the idea of major networking of major branches under a WAN system. The objectives of the new computerization objectives are set at two levels of the organization: at the managerial and operational levels. The objectives of computing at the managerial level are:

- improve management information systems;

- improve internal controls and audit;
- make CBE ready for global competition.

According to Ato Habteselassie Hagos, Vice President for Marketing and Corporate Planning and chief negotiator of the system, WAN is considered as an enabling tool towards improved and better quality decision making at CBE. He further stated that at the moment IT or WAN is worth more than anything for CBE.

On the other hand, the objectives of computing at the operational levels are;

- to upgrade the bank's service quality and capacity;
- to reduce costs and improve productivity of employees;
- to utilize information technology to avoid competitive cost disadvantage at this time and get competitive advantages in the future;
- to develop strong customer loyalty to the bank.

If these are the objectives of computing, why has the implementation of IT project delayed up to now? This was the question raised to Ato Habteselassie. According to him, the idea of WAN was initiated at CBE in 1994 by the former top management. Terms of Reference (TOR) for the project have been formulated and consultants were also invited for the systems study. Before the decision was finalized, restructuring of CBE was initiated. The choices for the top management of CBE were two strategic decisions: either to proceed with IT or to restructure the bank and then to IT. It was found strategically correct to halt IT until the basic preconditions were established and not the other way. The choice for the management of the CBE thus was the second option-to restructure the bank and then deal with IT.

Following the second option, the top management of CBE formulated vision, mission statements, objectives and values of the organization. For instance, the vision of CBE is to continue to be the leading bank all over Ethiopia. The mission statement, on the other hand reads as 'to extend cost effective financial services to all sectors of the economy that generate an attractive return on investment to the borrowers and support the development effort of the country. A new organization structure and authority responsibility relationships have been developed towards this end.

Other reasons for the delay of the WAN, according to him, are the human resource capacity problem, the lack of interest of software vendors, the size of the project and the lack of experience. Vendors were approached for an entire project package and implementation including two years after commissioning of the last phase of the project. This comprehensive package was considered unusual by the vendors and quoted exorbitantly high price. For this reason, there was a need to negotiate and rewrite the bank's proposal by its staff was a complicated process. This caused protracted negotiation process and complicated the drafting of the contract. In the process, one of the vendors' agent in Ethiopia declined from its offer because it was reluctant to take responsibility for its partner in the software aspect. This was related to the lack of commitment and dedication on the part of some software vendors from USA companies. They expressed little or no interest to the Ethiopian and for that matter for the African market. This has made one of the hardware vendors to look for another partner in other countries which in turn contributed partly to the delay of the project.

Because the size of the project is huge (estimated cost of Birr 100,000,000), the management of CBE became extremely over cautious to minimize the risk of failure.

There were also outside observers who were expecting the outcome of the IT project at CBE as model for their own decisions

At the early stage of the project, consultants of the BARENTS Group, USA, were contracted for tender document preparation and vendor evaluation. But there was no sufficiently skilled manpower on the bank's side to work with the consultants and check their work. Two lecturers from the departments of Electrical Engineering and Statistics of the Addis Ababa University were employed for assistance. The consultants were expensive to CBE and the local personnel from the university contributed little or no help.

In the mean time, there was another sad news to the management of CBE that the existing operating system (AC-2) could collapse as early as January 1998. This forced the management of CBE to initiate a rescue mission to the problem. The strategy was changed from total systems ("Big Bandwagon") to partial systems acquisition as an interim solution to the problem. CBE then considered the interim solution as part of the initial WAN project. NCR for the hardware with Kindle (Ireland) for the software won the bid. BANKMASTER Database Management Systems (DBMS) from Kindle was acquired and attempts were made to downsize the closed mainframe data to the open client/server system supported by BANKMASTER.

However, some technical problems were encountered in the early stages of systems conversion. The problem arose during the user requirements analysis phase of the software customization. The user requirements were made with the most senior managers of CBE who may be less familiar to the detail operations of the retail banking

system. Later on, this was corrected when the software was customized with the assistance of operating and systems personnel on the bank side. Errors also occurred during the accelerated keying of data in the early stages of systems conversion.

Still, the other complaint from systems staff is that the personnel of the software supplier are not well qualified to make the customization. But the Vice president stated that this happened to the second group of the expatriate staff and some of them were sent back.

Currently, the system conversion phase has been completed successfully. The result of the interim solution may be considered as confidence builder to top management of CBE to further accelerate the WAN. The WAN is expected to be completed within one and half to two years for about 57 branch banks and the head office. But given the bank's experience and project management skill in the IT area, it is felt that this time frame may not be achievable.

3.3.2 Future Plans

As stated in the tender document and stated by the vice president, the future plans of CBE that are mainly related to and can be supported by IT are stated as follows:

- shift from mass market to segmented marketing strategy;
- new pricing or charging policy alongside with new differentiated service levels.

Bankers will be assigned to some group of customers to serve as consultants. This is the extension of the shift from mass marketing to segmented and differentiated marketing approaches;

- introduction of information technology intensive products:
- Automated Teller Machines (ATMs) are planned to provide long hours of service to customers. The system will be designed to facilitate connection of ATMs both at branch LAN and corporate WAN levels.
- on-line connection to large corporate customers for information access to their accounts is also envisaged;
- telephone banking for payments of certain bills such as electricity, water, telephone; and tax collections for Inland Revenue Administration and Finance offices of Regional Governments;
- Introduction of card banking such as credit/debit and point of sale terminals;
- leasing, factoring and venture capital operations;
- special attention to certain geographical areas. The primary focus of attention is Addis Ababa which contributes about 70- 80% of the national market;
- consolidation of the existing branch banks rather than expansion of branches. For instance, no branch is opened this year;
- build the human resource capacity of CBE;
- to redeploy human resources of CBE to value adding activities to customers and the bank;
- promoting the banking sector of Ethiopia towards excellence along with the other banks in the market;
- develop common credit information systems with other banks in the country;

- establish Bankers' Association in collaboration with competitors for information exchange, lobbying and negotiation for the creation of conducive banking environment;

3.3.3 Organization of Information Resources

With the IT development effort, the organization for the IT development was redesigned. Figure 3.1 shows the newly proposed organization of the information systems. As shown, the Director for the Information Services reports to the President of CBE. The Chief Information Officer (CIO) for Information Technology is subordinate to the Director for Information Services. Head for the banking systems has a staff status under the Director for Information Services. There are also two subordinates to the CIO: Heads for Operations and for Technical support. The different supervisory positions under the Operations and the Technical service divisions are as shown in Figure 3.1.

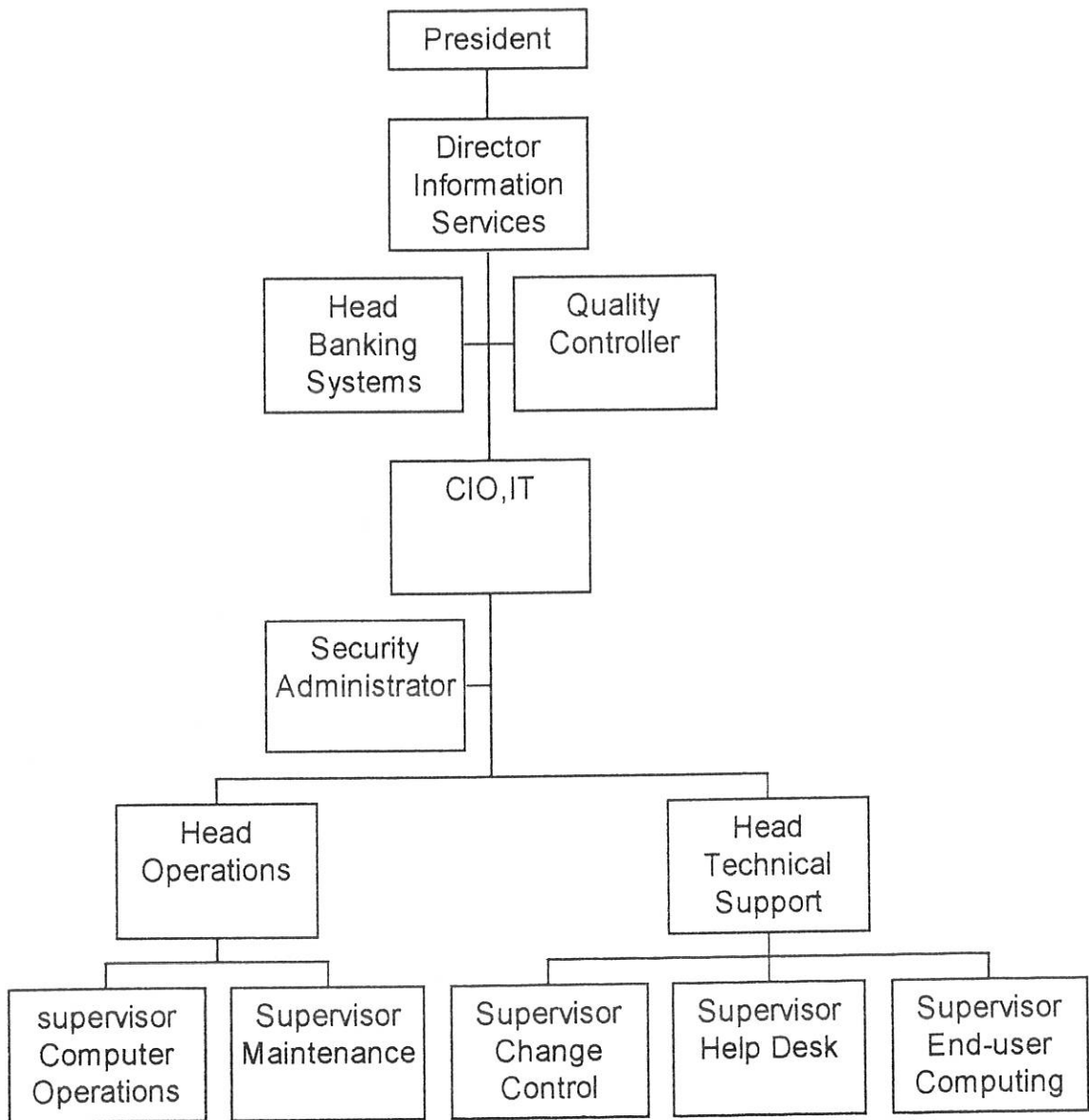


Figure 3.1 Organization of Information Services

3.3.4 Systems Personnel

In the current position classifications and job specifications, the qualifications requirements are computer science, management, electrical engineering, mathematics, statistics etc. The formal education requirement for Director of Information Services is either M.A/M.Sc. degree in computer science or BA degree in Management or Business

Administration. The position of the CIO for IT demands first degree either in computer science or BA degree in management or business administration. Both positions require 10 and 8 years prior experience in IT and the banking environment. Currently, about twenty six positions are identified. From the total positions, about the 23 require primarily first degree in computer science, software engineering or electrical engineering.

As stated in chapter one of the study, CBE has pulled the systems personnel from outside and inside sources. Currently, there are two programmers, two programmer/analysts and three systems programmers. Others are assigned in the supervisory positions for computer operations, maintenance and head for technical support. However, the Director for Information Services, the Chief Information Officer for IT, head for banking systems are still vacant positions. For the two highest positions, CBE failed to get appropriate candidates but for others the bank claims it has secured the experienced staff. Table 3.1 below summarizes the educational qualification and experience of the systems staff.

Table 3.1 Systems personnel and their qualifications

Qualification of the staff	Number of staff
Electrical Engineering	7
Mathematics	4
Information Science	1
Computer Science	1
Accounting	2
Statistics	1
Total	16

All of the staff are first and second degree holders. Two of them have second degrees in electrical engineering and information science. The first degree holders have a minimum of five years experience in technical areas.

3.3.5 Software and Hardware

The software requirement of CBE was relational Database Management Systems. The current Database Management Systems (DBMS) that has been acquired for the interim solution of the bank is the BANKMASTER. The main software components are BRANCHPOWER at the branch banks, IBSNET at the IBD and the BANKMASTER at the central of the system. The system can also support Automated Teller Machines and telephone banking systems. The system operates in an online basis between the branches and the head office. The system updates data in an on line system as long as the telephone link between the branch bank and the main servers is maintained. If the link fails to operate or function due to telephone or any other problems, the system uses the store and forward (SF) mode to update data. The status of the transaction processing system (TPS) is monitored centrally. The updated data are transferred daily or downloaded to the servers at the branch offices using KERMIT during night. The data are sent in compressed format and are decompressed at branches for usage. Back up file is taken daily in case the system fails.

As far as the hardware is concerned, CBE has acquired seven servers. Two NCR 4300 servers with 4 pentium pro, 200MHZ processing speed, 256 MB RAM, and 8GB Disk with one NCR Disk Array Subsystem with 32 GB Disks are installed at the location the central system. Three NCR S26 Servers, pentium Pro 200MHZ processor with 32MB

RAM and 4 GB Disk expandable up to 16 GB are acquired for Andenet, IBD and Finfine branches. Two NCR S16 Mini Tower servers, pentium Pro 200MHZ processor, 32 MB RAM, 4 GB disk are networked at the Africa Hall and Andenet Branches. There is also another server owned by the NBE at the head quarter in the same room. The model is similar to the first two servers.

3.3.6 End User Computing

The CBE has more than 131 personal computers of different models, 103 printers and 9 passbook printers at the different branches, regional offices and the head office. Branches at Addis Ababa except five or six (?) use personal computers including dummy computers. The head office and the other 22 branches (other than the networked) have personal computers as shown in Table 3.2. As indicated, the total number of personal computers at the head office and the other 22 branches in Addis Ababa are 92. This figure does not include the four networked branches and branches out side Addis Ababa. Out of the total 92 personal computers, about 49 are distributed to the head office functions. Five branches use 8086 DMV machines.

Though the personal computers are limited in number and modernity, the productive activities in the branches should have priority in distribution of personal activities. This requires clear policy in the distribution of personal computers.

Table 3.2 Personal computers at the head office and 22 branches in Addis Ababa

Manufacturer	Processor			
	Pentium	80486	Others	Total
AT&T	17	35	-	52
COMPAQ	1	-	-	1
DELL	2	-	-	2
DMV machine	-	-	7	7
IBM	7	18	1	26
NCR	1	1	1	3
TRIDENT	-	-	1	1
TOTAL	28	54	10	92

At the newly networked four branches and the IBD, there are five star topology Local Area Networks (LANs). There are also 128 nodes for data entry. The distributions of the nodes at the different areas are as shown in Table 3.3.

Table 3.3 Number of work centers/nodes at the networked branches

Area	Nodes	BRANCHES				
		ADDIS ABABA	IBD	ANDENET	FINFINE	TOTAL
Front Office	Teller	17	6	6	7	36
	Verifier	10	3	1	3	17
Back Office	Teller	-	2	2	-	4
	Verifier	9	19	1	2	31
	Supervisor	6	15	6	9	36
	Auditor	-	-	1	1	2
	Secretary	1	-	1	-	2
	Total	43	45	18	22	128

There is Computer Training Center at CBE for training of users. At this time, most of the staff at the networked branches are trained for command level users. The training is in most cases to enable the staff perform function specific duties. In other words, the training has been given to users to enable them perform their own specific duties. For

instance, the training for tellers was to enable them access customer account and perform specific data entry activities. This is because the training program for trainers (systems staff) in product specific aspect was delayed and the interim solution was extremely accelerated at some time.

During this period, the staff were assigned to enter data without sufficient training. This has resulted in too much error in data entry. To make the corrections, it took some weeks including nights and week ends for the networked branches. But since CBE was running the old and the new systems in parallel, the error was easily detected and now every thing is correct. The minimal level of training for end users has resulted in too much need for help from the limited systems personnel.

3.4 Critical Success Factors of CBE

Organizations have critical success factors that determine the success or failure of the entire organization. The focus of attention of top management should be around these areas. The information requirements of top management can be generated using the critical success factors. With this regard, the most critical success factors of the CBE are customers, IT and human resources. The bank's philosophy is customer first. The cultural value of CBE is to promote the motto "The customer is the king". IT is also considered as the major strategic resource of CBE. But the human resource is treated as the cornerstone of customer satisfaction and strategic usage of the IT. Presently, the CBE is recruiting the top graduates of colleges and universities and hunting the best brains from other organizations. The culture of the organization emphasizes on the human resources development and proper utilization.

3.5 Borrower Information Systems

The most important variable in CBE as far as information is concerned is borrower. Data must be properly collected, processed, disseminated and used for loan decisions. The bank has also faced a high volume of non-performing loans in recent years (more than Birr 2.5 billion). The basic reasons for loan losses or non-performing loans are problems in loan analysis/assessment, customer financial inability to service their debts, problems in environmental analysis, diversion of the funds to other uses, lack of loan follow up by some busy managers, high risk in some sectors such as transportation which has a saturated market, market problems of some borrowers and problems of ethics for some bankers. Almost all factors are related to information.

Up to last year, the loan analysts basically used to collect data about the collateral pledges for short term loans. Starting from last year, however, one wing of the credit and risk department makes loan analysis and decision. The other wing makes loan review and follow up about the use of the loans for the intended purposes.

The bank uses the past performance of its existing customers to refuse loan grant. On the other hand, data is collected about new customers. The sources of data about potential borrowers are inter-bank exchange of information, interviews with loan applicants, financial variables, physical examination or inspection of premises and property.

The inter-bank exchange of information about loan applicants was started last year when other banks were allowed to operate universal banking activities. This was initiated when some borrowers started to borrow fund from more than one bank using the same property as collateral pledge. Usually, the inquiry of other bank about the loan

applicant is sent to CBE or from CBE to other banks with a form to be completed by the bankers. CBE distributes the inquiry to its branches and the branch banks send the information back to the credit information part of CBE. The credit information division of CBE responds to the inquiring bank by filling in the confidential form prepared by all private and commercial banks in Ethiopia. On the average, the process requires more than seven days within Addis Ababa.

A recent practice of the bank is use of audited financial statements of loan applicants. The bank wants to make this practice as future requirement for loan decisions. However, because of the shortage of public accounting firms in the country and lack of experiences of the borrowers for having audited financial statements, this has become a difficult requirement for the customers and CBE.

From the internal source, the cash deposits, withdrawals, balances, past history, sources of income, profits etc., are examined for decision making by top management. However, this task is laborious, time consuming and not up to date for decision making. But a one day delay demands another information and the risk may be very severe, stated Ato Habteselassie.

3.6 Strategic Planning and Sources of Information

CBE has been under strict control and supervision of the NBE for nearly two decades and there was no formal strategic planning. The major customers were also profitable public enterprises and limited importers and exporters. The explanations for its past success are related mainly to monopoly position and its concentration on less risky short

term loans for the profitable public enterprises (Harvey:1995). But, now it started strategic planning.

3.6.1 Strategic Planning

Strategic planning as a concept at CBE is only three years old. The new market oriented economic policy of the Ethiopian government, the dynamic technological changes, the unstable external environment, the changes at the national and global level have necessitated an adaptive approach to the environment. To make CBE responsive, adaptive and proactive to the environment, strategic planning became extremely important to CBE.

The following steps have been used to develop the five year strategic plan for 1996/97-2000/2001. First, internal environment assessments and external environmental scanning have been made. For the internal environment assessment, six task forces were established to examine the capacity and resources of CBE in six areas. The areas were Marketing, Human resources, Management Information Systems, Finance, Credit and Operations. The reports of the task forces indicated basic problems in the operation of CBE. Among the problems, the major ones are lack of clear direction in the context of the new environment, capital problems as compared to BIS requirements, absence of customer focus market, serious problems in manpower and backward information technology. The top management of the CBE reached at a conclusion that with the current structure, it is impossible to successfully continue to grow and prosper in the new environment.

The results of the internal assessments of the bank necessitated the internal restructuring of the bank. Credit and Risk, Marketing and Corporate Planning, Human Resources Management, Operations and Finance functions of CBE were reorganized at Vice President levels. New departments, divisions and units including the corporate relations, corporate planning, marketing and strategic planning are new to CBE structure.

As far as the external environment is concerned, the broad and the narrow environmental elements were examined. Government financing or government deficit, interest rate regulation, rate of inflation or/and deflation, the import/export volumes were found to be important variables. The role of other private and government banks as competitors is considered insignificant. Nevertheless, it was also recognized that they are taking a certain portion of the CBE's market.

The most significant and serious problem in this regard was that of possible entry of foreign banks. If foreign banks are allowed to operate in Ethiopia, sustaining of the current position is unthinkable. Without the proper utilization of information technology and full-fledged WAN, competition with foreign banks may be extremely difficult. In the past, the loan was government focused. But in the future, this is no more a direction. Presently, corporate customers are identified based on volume of transactions and past debt servicing experience. The Corporate Relations Division is established to manage the corporate customers. Fast loan delivery service is being provided to this group at this time. In the future, loan may be extended at differential interest rate to customers with different levels of risk and value to the bank.

There are also other problems. The basic problem is the high skill gap. The past environment of the socialist administration was not conducive to develop and maintain the managerial quality of organizations in Ethiopia including CBE. The other problem is low implementation of the strategic plans by CBE corporate level managers and the other functional and line managers. There are absences of awareness and commitment to implementation of strategic plans at all levels of CBE. The past experiences of the bank in socialist regime and problems of communication in the organization are also contributing to the low level of strategic awareness.

The organization structure has also contributed to strategic implementation problems. For example, the company's strategy is customer focused. To provide fast delivery service to the customers, decentralized decision making should be practised at the bank. But there are basic skill problems at the operational levels for implementation. The tall/deep structure of CBE makes it difficult to provide fast delivery of customer service. The reaction of the bank to the environment is very slow because of problems of skills, lack of awareness, absence of strong competition, poor control systems, lack of sense of ownership as compared to private banks, lack of up to date and accurate information.

The view of top management is different from the staff at the strategic planning office who mentioned the above problems. In CBE, there are three things: managing change, growth and operations which demand attention and actions simultaneously and continuously. The bank is growing at an average rate of 25% per annum as opposed to the current human resource capacity problem both in quality and quantity. On the other hand, there is too much staff at the paper intensive back office which can be redeployed to other value adding activities when the WAN is completed. Many staff are very busy

and work on Sundays and Saturdays. The loan decisions require serious attention and investigation. An error in this aspect may lead to serious problems. There are also many critical issues that demand the attention of top management of CBE. This situation may create some wrong picture for those who may not see the whole picture. But to create strategic thinking at all levels, it requires time. However, the source of the problem and the reasons should have been clarified.

The strategic planners expect some basic benefits from the envisaged WAN. These include on line access to corporate data, customer database, rapid information flow, simple account and fund transfer, elimination of rekeying of data at the head office for batch processing, simplified credit extension, easy follow up and collection of loans. In a banking system, the manual system is difficult, time consuming and brings excessive delay in plans and actions.

3.6.2 Sources of Information

CBE uses both the internal and external environment as sources of information. The internal sources are the branch banks through their district and area offices to the head office. The major external sources of information are the National Bank of Ethiopia, the Ministry of Finance, the Central Statistics Authority, the Ministry of Economic Development and Cooperation, the Chamber of Commerce, the Ethiopian Investment Authority, Coffee and Tea Development Authority, the annual plans of major customers and intelligence system. The specific information products are stated in chapter four of the study

Loan officers, corporate relation officers, mystery shoppers and even customers collect data about the activities and pricing strategies of competitors. The data collected is analyzed and used to take corrective actions in the areas of policies or procedures. It is also used to improve customer service and training programs. The external environmental elements such as the media are scanned and monitored daily.

However, there are problems in getting the information timely. For instance, the quarterly report of the NBE in most cases is delayed at least for nine months. The branch banks are scattered throughout the country. The branch banks do not send their information in time. For example, the deadline for submission of information at the time of the interview was March 22, 1998. But on March 31, 1998, only very few branches and offices did send their information to the head office.

3.7 Process Reengineering: Case of Andenet branch

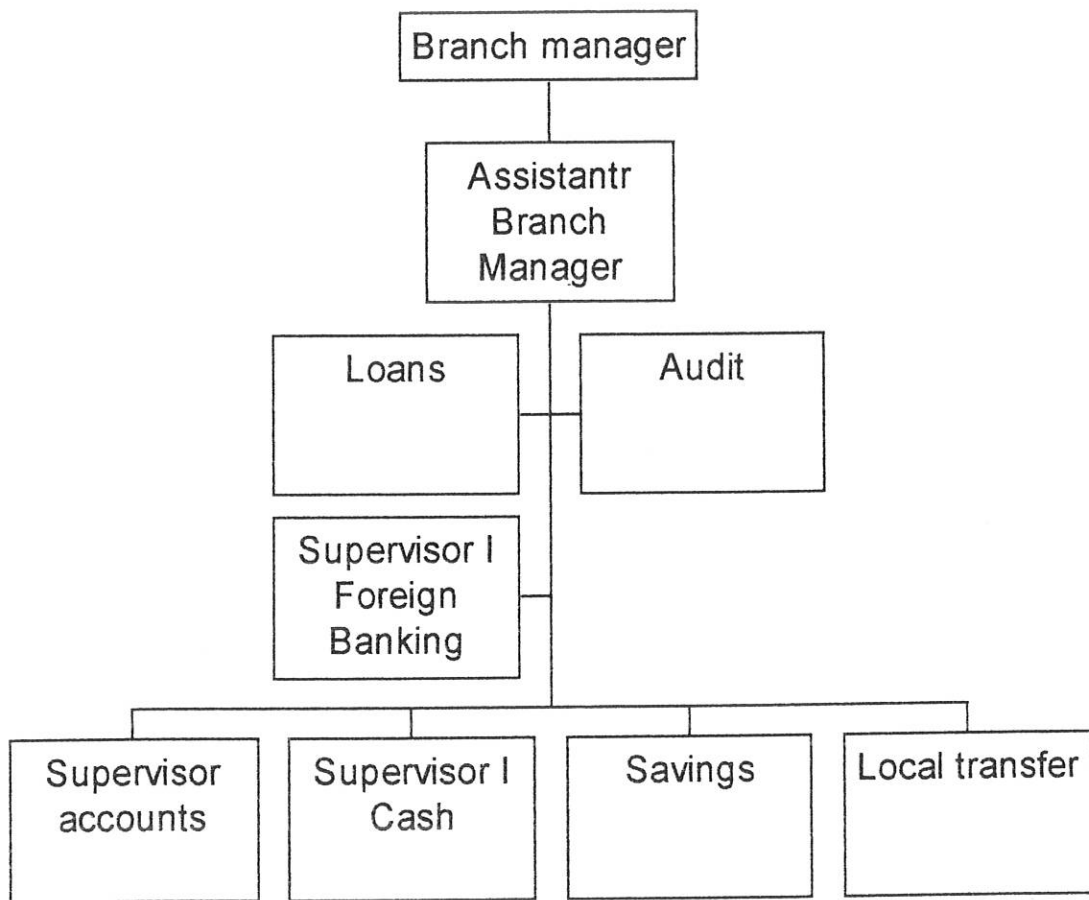
According to the team¹, the financial market is similar in any country and there is also intensified competition in the sector at the global level. CBE is very giant in the country but if foreign banks are allowed to operate in Ethiopia, it will be extremely difficult to effectively compete and maintain the loyalty of customers. The solution is to provide quality customer service to maintain the loyalty of customers. Presently, there are excessive customer waiting time, controls and authorizations, cumbersome customer identification and poor physical layout. The effects of the last problem are customer congestion and inefficient staff communication in the office.

To solve these problems, CBE has started process reengineering at the Andenet branch as pilot test. The prevailing conditions have been taken as opportunities for service improvement. Initially, the consultants from the BARRENT Group, USA, were employed for process reengineering and systems study. Later on, the works of the consultants were modified and localized to the realities of the environment by the team and management. The framework upon which the team has worked out the process reengineering is as shown in Figure 3.2.

The management practices and the current organizational structure were examined to determine reporting relationships, defined organizational units, delegation practices and levels of authority. The job descriptions of each position were examined and compared to actual work tasks. The work of the team has resulted in the redesign of the functional organization as customer based one, procedures/work flows and job have been redesigned, layout of premises has been adjusted and authority/approval policies have been revised.

Objectives	Major Area of work	Goals to Achieve
<u>Required outputs:</u> . Cash checks . Make payments . Deposit to Accounts	Organization	. Implement functional Organization structure . Establish Reporting Relationships . Define Organizational units . Create staffing model
	Procedures	. Complete Detailed Flow charts . Streamline procedures . Remove Redundant Processing . Ensure Adequate Controls
	Job Design	. Establish Supervisory Requirements

¹ CBE has established a four man team for process reengineering task. The interviews have been made with three of the team members.



(a) Old

(b) new organization Chart

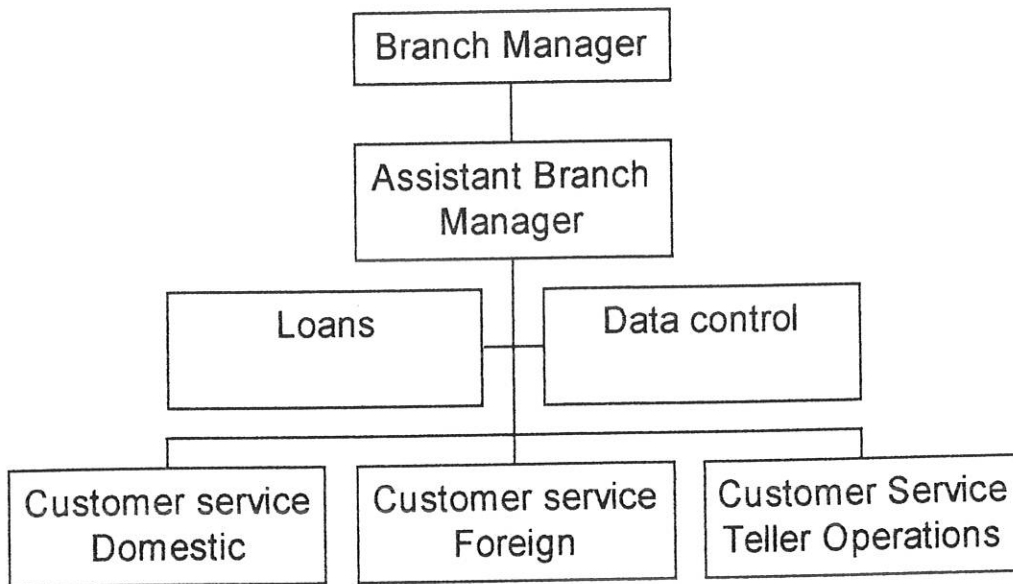


Figure 3.3 Organization chart of the Andenet branch

Under the revised organization structure, the current account, savings account and local transfers have been merged under the customer service for domestic aspect. On the other hand, customer service for foreign part handles all foreign banking services excluding those under the foreign exchange bureau.

The procedures/processes at CBE are excessive. In most cases, there are about five or more steps/activities in a simple process such as withdrawal of money from one's own account. These excess control and redundant activities have been reduced to one, two or maximum of three steps/activities in some cases depending on the authority limit of employees and their managers. Cumbersome identification of customer identity has been improved.

The layout of premises/offices of branch banks do have some problems. The office layout, staff placement, and the entire premises have been looked out. They have been found to be problematic. To solve this problem, distance among the different activities in a process have been minimized. Job and authority also come to the front office so that quality of customer service can be improved by reducing the waiting time.

According to the bank's study in major banks of Addis Ababa, more than 93% of customers in the savings account category withdraw no more than Birr 5,000. More than 87% of customers in the current account withdraw less than Birr 25,000. The tellers were, then, empowered to approve withdrawals of cash by customers up to Birr 5,000 and Birr 25,000 in savings and current accounts respectively in a single step. This has improved the productivity of tellers in terms of cycle time reduction by 70% and 78% in the savings and current accounts respectively.

Process reengineering without computer network is unthinkable and the bank considers information technology extremely important. The bank considers IT as the back bone of the effort. The present improvement is with inherited lengthy process of manual customer card identification by the tellers. The team expects further radical improvement in the accuracy and quality of customer service if the specimen signatures of customers are scanned into the customer database. The writer did learn that signature scanning was started after the interview has been made. However, the reengineering has targeted only the front office and the paper intensive back office remains unchanged. With this change, the manpower requirement has been reduced from 36 to 24.

The process reengineering was not free from problems. The team attributed the basic reason to resistance and negative reaction to change due to some fear. Even branch managers resisted the process reengineering. The fear was mainly related to job security or fear of possible layoff due to the introduction of IT. To minimize the change resistance, intensive training has been used. The senior managers of the CBE did play extremely important roles in tackling strong change resistance of branch managers and employees. The team considers the Executive Vice President for Operations and the Vice President for Marketing and Corporate Planning as agents and champions of the change. However, after implementation, the employees of the Andenet branch are proud of being pioneers of the process reengineering project.

As far as the future plans are concerned, the bank has targeted 57 branches to replicate the process reengineering. These branches are selected on the bases of volume of transactions, development of the infrastructure such as electricity and telephone facilities. It is estimated that the project will be completed within three to five years. However, the team never thinks of process reengineering without the realization of the envisaged WAN of CBE. However, the achievements are significant but the target processes are very limited.

CHAPTER FOUR

ASSESSMENT OF THE INFORMATION RESOURCES AND THE BUSINESS STRATEGIC PLANS

4.1 Introduction

The status of information resources needs examination before we proceed to the discussion of strategic applications of IT in the organization. For this purpose, Synott's (1987) Information Resource Architectural Planning Model is used to assess the IT infrastructure as reviewed in chapter three of the study . According to Synott, Information resource architecture is the art and science of designing supportive frameworks for a firm's technology infrastructure. The assessment is based on the components of the model. This model has the following components: business architecture, data architecture, communications architecture, human resources architecture, user-computing architecture and systems architecture.

The business strategic plans as related to the environmental assessment and the sources of information are also assessed. The practice of process reengineering is also evaluated using business process reengineering model .

4.2 Information Resources Architecture

As stated, the information resources of CBE are evaluated using Synott's information resource architecture planning model. The model is used to evaluate the current statuses

of the information resources and their future plans. This is an appropriate model to evaluate the IT infrastructure of CBE which has geographically distributed branches. For geographically distributed firms, this model is considered as appropriate by its author and the researcher felt this as appropriate for CBE.

4.2.1 Business Architecture

Business architecture is the foundation of information resource planning (Synott:1987). Business architecture results from the strategic planning process. Business architecture or structure, is usually a matter of tradition, corporate style and culture, and management preference (Ibid.). As stated in chapter three, major changes are made in the organization structure, objectives, vision and mission statements of CBE to maintain its market share, dominance and adjust to the needs of the environment.

Major changes happened in CBE due to changes in the composition of senior management, the huge non-performing loans the banking industry faces, the liberalized financial policy of the Ethiopian Government and the global competition.

According to Synott (1987), radical change (in culture and/or organization structure) usually only occurs as the result of something traumatic: a crisis in the organization (e.g., huge losses) may trigger a corporate reorganization; a major strategic planning exercise may trigger change. For the above reasons, the changes at CBE can be stated as radical. Whatever the degree of change in an organization, centralization or decentralization of authority are the two extremes (Ibid.).

Because of the huge amount of non-performing loans in the bank's history in the last few years and the nature of functional structure, decision making at CBE is centralized. Contrary to the current centralized decision making practice, CBE speculates to use distributed data processing for its information resources. When computing resources and databases are scattered rather than centralized, they are called distributed data processing and distributed database systems (Schultheis and Sumner:1987). Data, communication and systems development (now only customization) architectures are centralized whereas data entry, data validation, LAN operations are decentralized at the networked four branches and the IBD of CBE. When organizations are geographically distributed like the CBE, it is customary to use distributed data processing systems.

4.2.2 Organization and Information Resources Structures

There are various ways of organizing an organization such as function, product lines, geographic areas or customer bases. CBE is basically organized on functional bases at the top. There are functions of Operations, Finance, Credit and Risk, Marketing and Corporate Planning and Human Resources and Property Management at Vice President levels as shown in Figure 4.1.

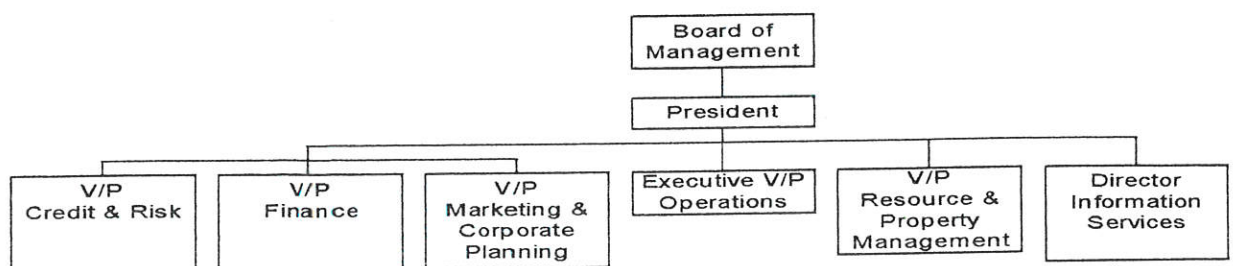


Figure 4.1 Organization Chart of the CBE at the top level

In the context of centralized/decentralized theory of organizations, there are two types of organizations: the functional and divisionalized (Synott: 1987). The functional organization is centralized and the divisionalized one is decentralized.

The Director of the Information Services is directly accountable to the President of the CBE at assistant vice president status. Under the Director for Information Services, there is a position for Chief Information Officer (CIO) for IT. The above two positions should be merged as CIO. The duties and responsibilities of the two positions can not be basically different in any organization. But under divisionalized type of organizations, the information systems can be one of the SBUs and information technologies as functional unit (Earl:1988) . The CBE is organized in functional approach and SBU unit does not exist.

As depicted in chapter three, the organization structure of the information systems lacks clear pattern. According to Synott (1987), the information systems organization must follow corporate organization. As mentioned earlier, the organization structure of CBE is functional. The logical approach to organize the information systems of CBE should be according to functional bases.

And there are three main functions of the information systems (Senn: 1987, Schultheis and Sumner: 1989 and Obrien: 1990): these are systems development, operations and technical services/support. The three functions are briefly discussed here below.

SYSTEMS DEVELOPMENT: Systems development is responsible for managing the investigation, analysis, design, implementation, and maintenance of information systems

within computer using organizations (Obrien: 1990). Specific activities include analysis and design, prototyping, applications programming, project management, quality assurance and systems maintenance. In the long run, since the direction of CBE should be towards development of its own systems, the systems development function will be extremely important and therefore must be included as a function. Currently, there is major involvement of the staff in the customization effort.

OPERATIONS FUNCTION: The operations functions are the day-to-day operations of the computer systems (Schultheis and Sumner: 1989). Operations management is concerned with the use of hardware, software and personnel resources in the business unit data centers (Obrien:1990). Due to the development of networking, operations have become a strategic skill area for the continuous operations of the bank (Keen: 1989). If the network fails to operate, banks will go out of business. Therefore, the operations function is a strategic activity for CBE which requires special consideration.

TECHNICAL SUPPORT: Technical support personnel are responsible for systems programming, system evaluation, user services, database administration and communications systems design and maintenance (Schultheis and Sumner: 1989). One of the most critical function of technical support is data administration. According to Tom (1987) (quoted in Obrien: 1990), data administration has three basic functions: planning and user co-ordination, database administration and standards documentation.

In planning and user co-ordination, data resource planning, user liaison and requirements definition are the basic functions. Software acquisition, database design and performance measurements are performed by the database administration. On the

other hand, data standardization, data dictionary support and security administration are dealt in standard documentation.

According to Obrien, telecommunications management function of the technical support function manages the WAN for applications such as online transactions processing, inquiry/response and electronic mail and the LANs for group and end user computing. CBE needs a strong support service. A typical organization of information systems or resources in an organization is as shown in Figure 4.2

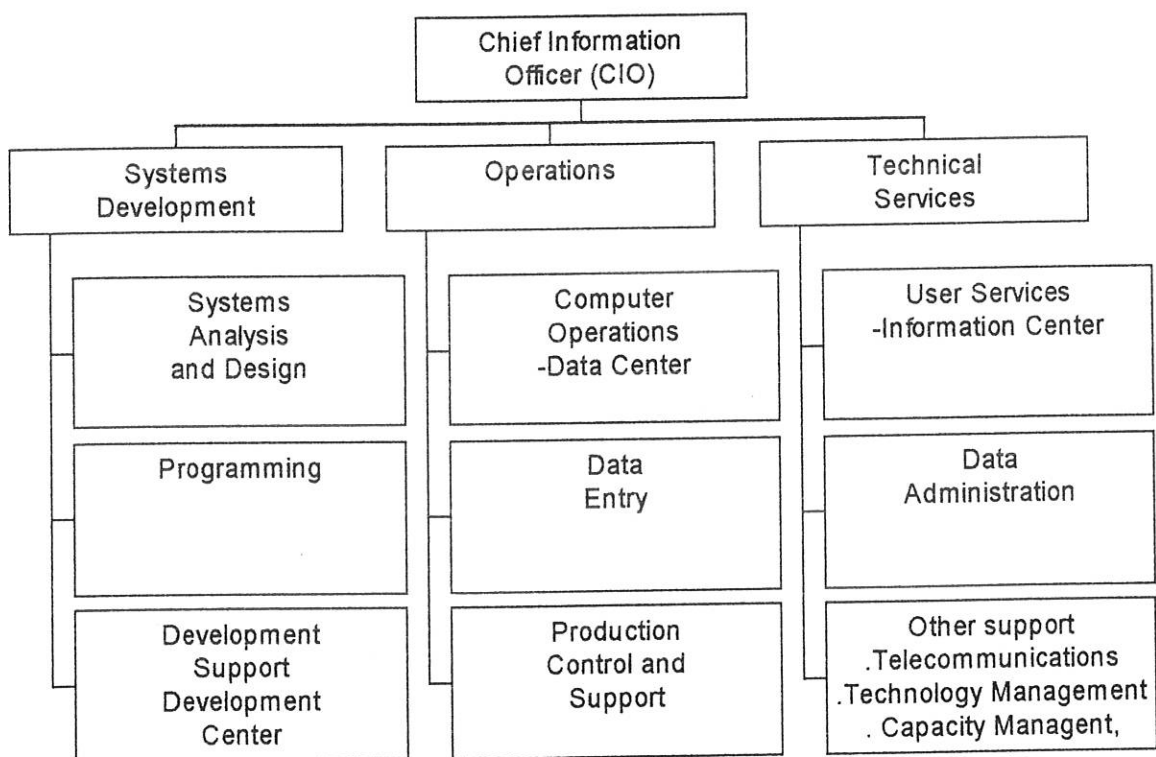


Figure 4.2 Organization chart of information systems or resources.

Adapted from Obrien, 1990, Senn, 1988, and Schultheis and Sumner , 1989.

The organization of the information resources at CBE can be reorganized in this approach. Units such as quality control, change control and security administration can

be integrated with the functions mentioned. As stated earlier, the positions of Director for Information Services and the Chief Information Officer for the IT are duplicates and can be merged. The emerging name for the position is the Chief information Officer (CIO) and the forthcoming discussion is based on this position.

The vertical length of the department of information systems should also be short. The systems personnel must be organized as team rather than in a tall traditional hierarchy with many office administrative functions. However, the promotional ladder of the IT staff should be equivalent to the managerial positions in the organization.

4.2.3 Systems Personnel

The success or failure of an information service in an organization rests primarily on the quality of its people (Obrien: 1990). As a result, information systems managers give great attention to their human resources recruitment, training and placement. But at CBE, the manpower specification and requirements emphasize highly on technical skills. In this part of the study, the two key positions (the CIO and the systems analysts) in CBE are considered based on the specifications and the requirements of the jobs.

THE CHIEF INFORMATION OFFICER (CIO): At CBE, the qualification required for the Director of Information Services is primarily M.A/M.Sc. degree in Computer Science or BA degree in Management or Business Administration. Interviewees have stated that the second option was added as a result of major persuasion effort of one senior executive and some experienced staff in the IT project office. The position of the chief information officer (CIO) for IT demands either first degree in computer science or

business administration/management. As stated above, the researcher considers the two positions as duplicates of the same job and treats them as CIO for the following discussion.

To determine the specification of one position, the most important thing is to make job analysis of the position. The basic responsibility of the CIO is to create communication link between the top management of the firm who are less familiar to the information technology and the technical personnel of the IT department. The top management may lack basic understanding of the technology because managers come from other functional areas of the organization. Technical personnel usually lack understanding of the business of the organization. The appropriate person for the CIO is then one with a strong understanding of the information technology and business aspects of the organization.

According to Synott (1987), the CIOs are businessmen first, managers second, and technologists third- in that order. The CIO as businessman should possess skills in strategic planning, marketing and market research, financial planning and management, corporate strategy formulation, product knowledge, competitive analysis, business ethics, customer relations and communication skills.

The roles of the CIO as a manager according to Synott are also many and must perform the following functions: financial planning, human resources management, project management, technology planning and management, communications, decision analysis and control systems.

The CIO also plays a role of a technologist. As a technologist, CIOs are skilled in managing information technology. The common areas as to Synott are data management, user computing planning and support, telecommunications planning and management, data resource planning and management.

Earl (1988) stated the tasks of the IT director (CIO in this case) into three major areas. The first is business leadership-connecting use of IT with business needs and strategy. The second task is technology leadership-working appropriate technology policies for the business, keeping up with and co-ordinating information technologies. The third is functional management-having executive responsibility for the IS function and guiding its evolution. From the above discussion and the new requirements of the information era (starting from mid 1980s), the emphasis of the skill requirements of the CIO are strong understanding of the technology and the business of CBE.

When we see the position specifications of the Director of Information Services of CBE, the requirements are at two extremes. The one who is trained in management lacks knowledge in the information technology. On the other hand, the second degree holder in computer science has serious deficiency in being businessman and manager. However, a proper training program can also minimize the problems in either area. If the bank wants to depend on experience for business knowledge aspects, that will be a serious mistake as experience can not substitute formal training. But the country's prevailing condition may make it difficult to get a person with a perfect fit with this condition. So training can be provided to remove the deficiency.

SYSTEMS ANALYSTS: Another problem also exists in the job specifications of the systems analysts. The requirements for the system analysts at CBE are primarily degree in computer science. The other options are graduates of management or accounting. The role of a system analyst is to create communication link between users and the technical staff in the IT department. Systems analysts are at the centers of users, top management, information systems vendors, applications programmers, systems programmers and database administrator (Whitten, Bentley and Barlow: 1989). The past practice was towards the technical area and this is because in the past, computing was seen as essentially a technical function for the most part (Galleries and Sutherland: 1994).

According to Whitten, Bentley and Barlow, systems analysts must be skilled in the areas of information systems techniques and technology, computer programming and general business areas. The technical topics are database techniques, data communications, artificial intelligence, microcomputers, microcomputer software, graphics and computer security and the like. The systems analysts must be proficient in at least one high level programming language such as COBOL or C/C++. The analysts should also become familiar with at least one fourth generation language such as dBASE.

Analysts must be able to understand the business operations of the organization and understand the needs and problems of business experts. Much of the business knowledge, however, will be acquired while on the job. However, Whitten, Bentley and Barlow recommend that the analysts must take at least one course on such subjects as financial accounting, managerial or cost accounting, quantitative methods, marketing, production and inventory operations, personnel management, business finance, organization behaviour, business ethics. Systems analysts should possess problem solving,

interpersonal communications and relations skills (Ibid.). So far no training is given to the systems analysts of CBE in most of the areas mentioned.

Unless some remedial training is provided to the computer science or management and accounting graduates in the areas of their deficiency (business and technology respectively), it will be extremely difficult to get successful and qualified systems analysts. On the other hand, the best source of recruitment for systems analysts is the organization itself (Keen: 1988). Information systems units can and should recruit systems analysts aggressively from inside the organization (Ibid.). The internally recruited personnel must be trained in the technology as they are familiar with the business aspects. But one should note that age matters for learning of technology.

However, the training practice of the past for the centralized computer system should not influence the management of CBE for its systems personnel training. According to Keen (1988), information systems units have always been short of good development of staff and technical specialists. Keen further stated that to a large extent, that a problem has been compounded by the emphasis placed on the technical 'aptitude' and on experience. This is the influence of computer era that has created the technical elite at the centralized mainframe computer center as opposed to the present information era.

Technical personnel can also be recruited from outside the organization as technical expertise is organization independent. This is because technical skills can be acquired in any environment. The technical jobs in most organizations are similar.

In summary, the basic skill requirements of the systems staff particularly for the director and systems analysts are at the two extreme cases of technical and business knowledge. As stated in chapter three, the position specifications of the other staff are dominated by the thinking of the computer era which was common before the mid 1980s in the Western World.

As indicated earlier, the systems staff training program was made part of the IT project. But when the project was delayed, the training was also delayed. One of the serious mistakes of CBE is its failure to take corrective actions such as to build and rebuild its systems human resources. There was enough time to train its staff in systems analysis, database management, programming and other technical aspects. The opportunity that has been created in Ethiopia by the Internet connectivity has been missed. Presently, with the Internet connectivity, the staff should not necessarily go to the West for learning some basic skills. Nor the experts come from the West. Rather, many training programs are being offered online through the net. Many universities started offering training in IT at any level through the Internet.

4.2.4 Systems Development Architecture

Systems development architecture at the strategic level involves the long range planning of the applications systems needed to run the business and support corporate objectives (Synott: 1987). This basically deals with systems methodology and documentation, programming language(s), the role of the CIO in systems development and systems portfolio as new and old systems.

The new system, the BANKMASTER, is acquired and the data is downsized (converted from closed system to open system). This is a major and strategic decision in CBE's IT project. The acquired software package has been used by more than 100 banks in countries such as Kenya, Nigeria, South Africa and Ghana. More discussions about the software are made in the forthcoming section.

In the newly acquired system, the areas of computerization are savings, current, time/fixed deposit, overdraft accounts and loan/advances. The system supports also customer signature verification, collateral registration and audit trail. In the International Banking Division (IBD), the system supports Letter of Credit (L/C) export and import, Inward Bills for collection and Inward foreign payments.

So far, there are no standard systems development methodology, documentation and programming languages at CBE. The role of the CIO in the systems development is extremely important. But this position at CBE is still vacant.. The CIO is also extremely important for control of systems.

The customization is not fully completed. If the customization of the software is not completed within the projected time, the increased cost may force CBE management to modify the software using internal staff. Software modification without the consent of the vendor may bring serious consequences in the software and for contract enforcement. Future modification may be also difficult and resource consuming. This tendency may create chaos in the system development strategy of CBE

4.2.5 Hardware Architecture

For the new LAN/WAN systems of CBE, the NCR has won the bid to supply computers, servers and other peripherals (Kindle for the software as a partner of the NCR). The NCR has already supplied the required hardware for the networked branches. What this means is, therefore, the strategy of CBE is hardware uniformity.

Uniformity is essential to maintain a smoothly functioning network. According to Liebmann (1997), uniformity has also become a common practice for the purchase of servers, printers, modems, hubs, routers and other network equipment. Liebmann identifies the following advantages from uniformity :

- it reduces the number of separate products for which the team needs expertise.
- it allows the team to use a smaller set of vendor specific management tools.
- it allows managers to repeat configuration and troubleshooting experiences.
- it allows the staff from offices or departments to assist and cover for each other.
- it limits the number of vendor support contracts.
- it increases the vendor responsiveness to support calls.
- it enhances the availability of replacement units in case of emergency.
- it reduces cost through volume purchasing.

However, the uniformity strategy has some risks in case the vendor goes out of business. In the dynamic and rapid technological improvement of the 21st century, it is extremely difficult to identify suppliers who can maintain their good performance and excellence indefinitely. However, the possibility of staying in the business for vendor selection has been considered.

4.2.6 The Database Management Systems (DBMS)

The initial requirement specification of CBE was for relational DBMS. DBMS is a collection of software packages and programs that store data in a uniform form, organize data into records in a uniform way and allow access to the data in a uniform way (Schultheis and Sumner: 1989). Schultheis and Sumner have identified components and the features as essential in any commercially available DBMS. The components and their descriptions and CBE's packages are identified as shown in Table 4.2.

Table 4.1 Components of DBMS and comparison with BANKMASTER of the CBE

COMPONENT	DESCRIPTION	CBE'S DBMS
Data Dictionary/ Directory	Contains the names and descriptions of every data element in a database	There is.
Data Language	- The special language is used to describe the characteristics of the data element (Data Description Language-DDL) - Standard common Language (Data Manipulation Language-DML)	Intelligent Query (IQ)
Teleprocessing Monitor	It is a software package that manages communication between the database and remote terminals	Link Master
Applications Development	An application development system is a set of programs and commands designed to help programmers to develop programs online	- Structured programming - Fourth Generation Languages as others
Security software	A security software package provides a variety of tools to shield the database from unauthorized access.	- UNIX at the head quarter - NOVELL NETWARE at branch level, - Branch Power at applications level
Archiving	Provides the database manager with tools to	Index storage

systems	restart the database and to recover data in the event of failure	& retrieval • No software
Report Writers	A report writer allows managers and other users to design and output report without writing an application program in a programming language	Intelligent Query for Summary and listings
Query Language	Query language is a set of commands for accessing data from a database	All packages have IQ languages

As compared to the most popular relational DBMS such as ORACLE, the acquired DBMS has some limitations. There is problem of nil treatment. Archiving system is extremely important for CBE but it has no such component. Most of the components are acquired from third parties and co-ordination problem may arise in the future. The staff of the Kindle company may not have expertise in all the components.

Among the components identified, the most useful ones to managers and end users are the report writers and query languages. However, unless other programs are written, this will contribute limited role to the strategic planners at CBE. This is because the report writers and the query languages generate only financial statements and listings such as loan arrears and collections etc. As it is stated in chapter three, the users want previous report formats and screen features which requires more modification. The systems security implementation at CBE is not strong, rather it is weak.

4.2.7 Communication Architecture

In the current capacity of the Ethiopian Telecommunications Corporations, it is extremely difficult and in most cases impossible to get telephone lines. As stated in chapter one, CBE that was under the strict supervision of the NBE started connecting of

its branches in Addis Ababa in an online system at the beginning of the 1980s. As part of the plan, the CBE has 25 leased telephone lines that have been acquired about 16 years ago. Leased lines are cheap for constant, high volume access (Fritz: 1997) but too costly for occasional use. The speed of the present line is 9600 baud.

Though it has been an additional cost for CBE in the past, it can solve the telephone line problem at this time. In the future, this may not be a problem since the Telecommunication Corporation has a big project to increase the number of telephone lines from about 160,000 to 700,000 up to the end of this century as well as the quality of lines.

It learned that though not finalized, there is also a speculation to use integrated services digital network (ISDN) at CBE. ISDN promises WAN connections that are up to 10 times faster than a 28.8 kbps modem, costs that accrue only when using the digital pipe, flexible configurations, and near error free transmissions (Fritz: 1997). It provides also enhanced remote LAN access. ISDN network equipment, once too expensive for the average user, has fallen into affordable range (Ibid.). Fritz further stated that dial up and call connection are fast and transparent in ISDN device of LAN/WAN environment. CBE can also use shared satellite transmission as it is low cost communication link. Private microwave circuit can be still another alternative communication device within Addis Ababa. But most of these require investigation of possible alternatives to find loophole to the regulatory requirements of the Ethiopian Telecommunication Agency .

4.3 Project Management

The discussion in this section is about the grand IT project of CBE. As stated earlier, the project size at CBE is very big. Such big information technology projects usually face many types of risks. The decisions are not easy, simple and quick for reasons mentioned in chapter three. The sources and the types of risks are also many. As noted by Davis and Olson (1984), the anticipated benefits may not be achieved, costs may be higher than planned, time for implementations may be greater than estimated, performance of the hardware and software may be lower than anticipated.

If IT project faces some of the problems mentioned above, it may face danger of stagnation (McKenny and McFarlan: 1982 quoted in Schultheis and Sumner:1989). These factors will further delay the evolution of new information technology towards the highest stages. Stagnation may also occur at later stages of the project when the organization fails to expand in applications and into other organizational units (Ibid.). The IT project of CBE has faced (and is) experiencing delay, some cost overruns (exact figure is confidential) and lower performance of the software than the specified.

For instance, some software fault is reported by the customization staff of the Kindle company. Some functions do not perform their logical functions. In some case, the software does not seem to meet the system specifications that have been stated in the tender document. Frequent error messages that do not indicate specific problems occur; communication and traffic problems in system-user interface are very frequent. On the other hand, it is difficult to get perfect packages in all aspects in reality. But the software

maintenance capacity of the staff should be strengthened and appropriate modifications be worked out by both the vendor and the bank.

As stated, the project size is big. The structure of the present system is high, and the technology is also high. In such conditions, the project demands highly competent leader in information technology. The IT project office at CBE has been headed by three persons up to now with business background. Such fast changeover of the leaders might have created discontinuity in the project management. All of the project leaders did not have adequate exposure to information technology. Strong leader with strong background in the technology is extremely important for negotiation with vendors, to give advice to decision makers, to supervise technical personnel, systems security administration, follow up in customization of the software and the like.

Such absence of an appropriate and stable leader of IT project office may influence to the confidence of the top management in related to decision making. The top management may not also get accurate and timely information for decision making. Therefore, some measures must be taken to minimize the risks and improve the project management of CBE. Detailed tools and project structures are discussed in chapter five.

4.4 Evaluation of Information Systems at CBE: Revised Growth Stage model

As stated in chapter two, Galliers' revised growth stage model is used to evaluate stage of CBE information systems. The seven 'Ss' model views organization structure as the relationship among the strategy, systems, staff, style, skills and superordinate goals.

As stated earlier, CBE has been using the computer services of the NBE under cost sharing basis for many years. There were no IT staff, mainframe computer or any other information resource under the control of CBE. The systems staff of the NBE has developed the software packages for the branch banks of CBE. The only resource that CBE has inherited from the NBE is data. On the other hand, absence of past experience in the centralized mainframe have simplified the transition to the open client/server system.

The present strategy of CBE is acquisition of hardware and software. There is also no attempt at this time to develop application packages from scratch internally. The application packages that have been acquired can generate financial statements and listings or summary reports.

In terms of structure, the place of information services is one of the key positions in CBE. But there are no personnel at the position. CBE is in the process of selecting of Director for Information Services and CIO for IT. The acquisition of personal computers has no real organization structure and clear priority for distribution. Systems development methodology does not exist at this time. Programmers of CBE write programs to generate certain reports on certain subject and activities. The systems developed at this time are financial in nature. Most manual systems are retained as a back up to the computerized system of the networked branches.

There are about sixteen IT staff at this time (one left for another organization and still another has submitted a resignation letter at the time of interview). But about five programmers are very busy in the fire fighting activities of solving the transitional

problems of CBE. The external consultants from the Kindle company are still making the customization at this time.

The dominant style at this time is lack of awareness about IT applications. From the management side, the expectations are high. On the other hand, the present software can only generate financial statements and summary reports. The IT staff at CBE also worry about the delay in the completion of the customization process. There are skills at individual levels. But at the organizational level, the basic skill to manage and utilize IT for strategic purpose are still low.

For the superordinate goals, it is difficult to find out the conception of the IT staff and CBE's management during the interview. As stated by Galleries and Sutherland (1994), it is difficult to ascribe the set of superordinate goals at this stage.

From the discussion of the seven Ss, CBE is largely at the first stage of the revised stage growth model of Galliers. But there is high potential to accelerate the information systems to the highest stages of the model. As stated above, in many organizations, the existence of centralized data processing center and its isolated staff from business may create transition problem to the distributed data processing. But at CBE what Synott (1987) labelled as the problem of 'punch card mentality' does not exist. This will simplify the effort to create a new breed of the CIO who works closely with upper management to integrate business and technology (Synott:1987).

But to facilitate this, the systems personnel will be extremely important. Whatever is the case, the role of the CIO is extremely important to manage the information resources and

the applications of IT to the front office of CBE. CBE should not further delay filling of this key personality for this will make the difference between that determines the bank's future success or failure in respect of taking strategic advantages.

4.5 Sources and Types of Information

The CBE uses external and internal sources of information for strategic planning. The major sources of data using Michael Porter's industry sources of data are as shown in Figure 4.3.

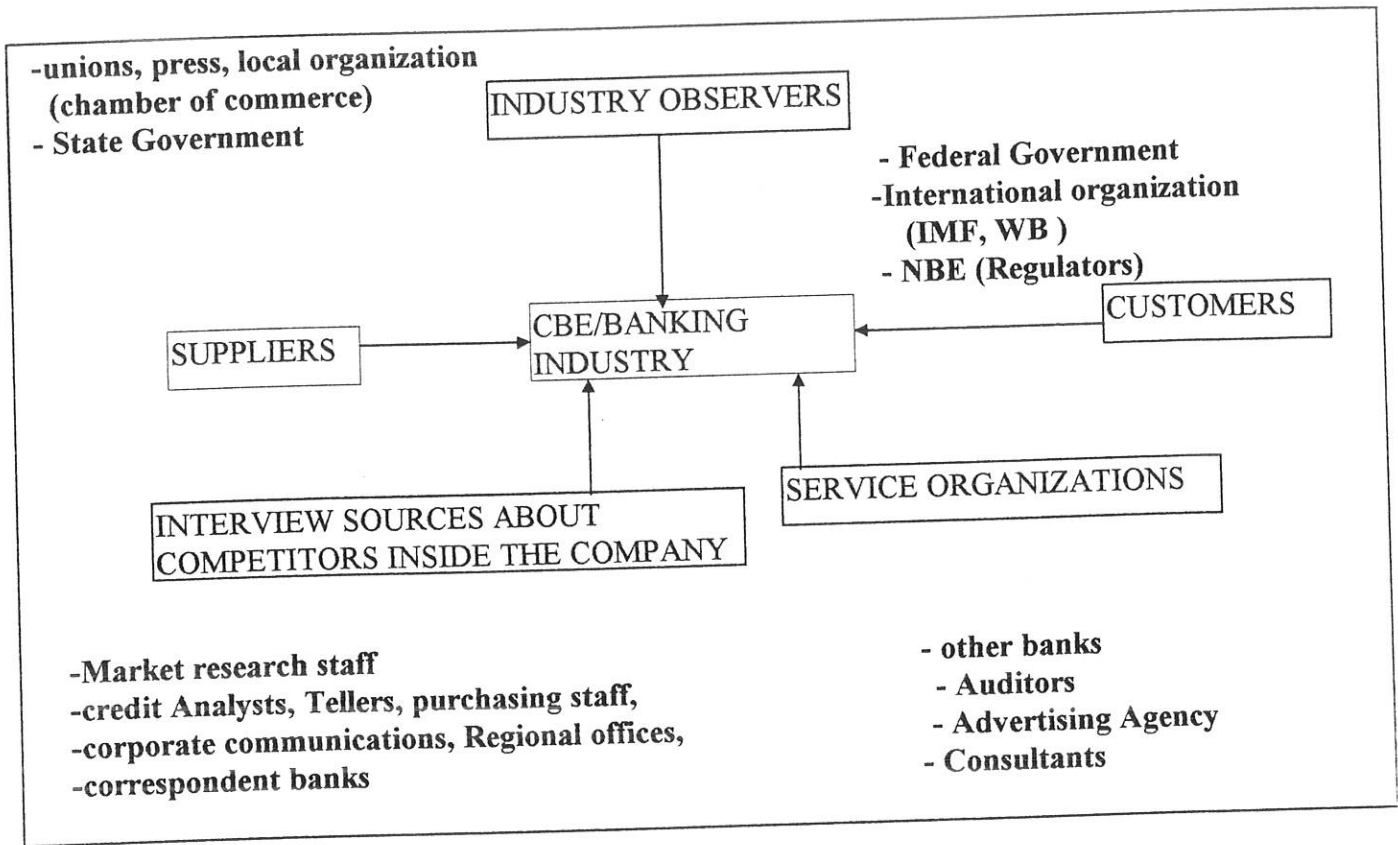


Figure 4.3 Industry sources of data, Adapted from Competitive Advantage: Techniques for Analyzing Industries and Competitors By Michael E. Porter., 1980 quoted in Hunger and Wheelen, 1993.

The CBE uses external and internal sources of information for strategic planning. The major information sources and types of information are as shown in Table 4.2.

Table 4.2 Sources of Information for the CBE

Source of information	Type of information
Ministry of Trade and Industry	• Statistical information on the volume of export/import and values of import/export • Price indexes • Industry Establishment
Chamber of Commerce	• Statistical information on the country's economic activities • Vital and periodic information through periodic trade bulletins The country's export products
Investment Authority	• Potential Investment Projects • Implementation of projects
Central Statistical Authority	• Statistical Data on Export/Import • Destination of Export • Sources of Import • Balance of payment • Statistical data on trade deficit of Ethiopia • Economic Growth
National Bank of Ethiopia	• Money supply and change • Nominal Value of Birr • Inflation/Deflation Rate • Real interest Rate • Exchange rate • GDP, Per Capita Income (Real and nominal) • Data on competitor's level and type of business • National demand for loans • Amount expected deposits
Ministry of Finance	• Government Deficit • Government Revenue • Government Expenditure • Government Financing
Ministry of Economic Development and co-operation	• Economic Growth by sector • Government Investment • Macro Economic Conditions
IMF/World Bank	• World Economic Conditions • World Financial Conditions
Competitors	• Customer credit information • co-financing
Privatization Agency	• General data on privatized Enterprises • Future plans for privatization
Coffee and Tea Development Authority	• World coffee market (Historical) • World coffee market trend • coffee production
Correspondent Banks	• Financial Status of business partner

Such information is currently maintained manually. But it can be computerized using Hyper Text Mark Language (HTML) which is becoming very popular in 1990s. The intranet and extranet approaches are also possible and plausible technologies at the CBE if the WAN is completed and expanded. Extranets link companies with their suppliers using the Internet standards. Intranet connects members within the organization. According to Evans and Wurster (1997), the emergence of universal, open standards for exchanging information over intranets fosters cross functional teams and accelerates the demise of hierarchical structures and their proprietary information systems. For instance, loan officers at the different locations of CBE can communicate and discuss loan decisions to avoid the geographical barriers.

4.6 The Environmental Assessments of CBE

The international economic and financial conditions, the performances of major individual countries' economies, growth of the African economy and the relative strengths of USA dollar in the exchange market have been assessed. The variables examined in the domestic economic environment are also many. The real GDP growth by sector, real per capita income growth, export volume and growth rate, exchange rate, the fiscal deficit of the Federal Government, inflation rate, money supply and change, real interest rate and total investment projects are considered to be important variables for CBE's strategic plans.

The assessment of the competitive environment indicates major competitive advantages to CBE. These include more branches, limited activities of other banks, domination of market share, problems of other banks in deposit mobilisation, loyalty of customers and

the status of CBE in market leadership. CBE has also identified major opportunities. The opportunities are increasing demand for loans, conducive economic, investment, financial and fiscal policies, low level of inflation, increase in foreign trade volume, liberalization of foreign currency exchange, ban of franco valuta, limited capacity of competitors, collaborative regional governments and passing of the foreclosure law.

CBE has also identified the threats of the external environment. Movement of customers from non-interest to interest bearing accounts, legal restriction on single borrower limit, narrow margin of interest rate, weakness of the court system, proposed tax imposition on interest income, possibility of new entrants, and lower liquidity are considered to be the major threats of CBE.

The internal assessment of CBE indicates good image, wide customer and branches, strong strategy and top management, good compensation for employees and high resource mobilization capacity. The advantages in credibility with correspondent banks, lower costs of money, leader in foreign exchange business, and capital adequacy to meet BIS requirements are also stated as strengths of CBE.

As stated in chapter three, CBE also discovered its own major weaknesses for its strategic plans and operational plans. The major weaknesses of CBE are shortage of highly skilled personnel particularly in credit and operational areas, increase in non-performing loans, delay in IT implementation, slow service delivery and credit processing against customer expectation and competition.

Basically, the strategic planning model that CBE uses is the S.W.O.T (Strengths, Weaknesses, Opportunities and Threats) analysis. SWOT analysis is used to identify an Organization's internal weaknesses, strengths and the external opportunities and threats. CBE has done a very good analysis of the external and the internal environment. However, it seems to have failed to identify industry specific and unique factors that determine the success or failure of banks in general and CBE in particular. The following is a discussion on bank specific critical success factors on which the strengths, weaknesses, opportunities and threats can be identified. The information requirements of the top management of CBE can be discovered using the critical success factors.

4.7 The Critical Success Factors

According to Sinkey (1989), five critical factors can be captured in the dynamic change of the banking environment. He used the acronym TRICK to mention Technology, Reregulation, Interest rate risk, Customer and Kapital (using the German spelling of capital) respectively. A brief explanation of the critical success factors in the context of the CBE is provided here below.

TECHNOLOGY: According to Sinkey, two of the practical purposes of banking are convenience and accessibility to both funds and account information. Information technology advancement in the areas of automated teller machines or ATMs have made it more convenient and efficient for customers to access funds and information. The major assets of banks in the information age are the computer hardware, software packages and office automation equipment etc. Information technology is a means of

product delivery in the banking sector. As a result, the most important variable to be given attention by banks is also information technology. The top management of the CBE gives the greatest attention to the IT with its limited human capacity.

REREGULATION: Banks are highly regulated institutions in the world. Currently, there are more than 13 regulations on commercial banks. There must be some mechanism to find some loophole to manage these regulations. The possible solution is reregulation. According to Sinkey, the word reregulation suggests a removal or relaxing of barriers to competition. But this is impossible in many countries including Ethiopia. However, since the regulatory capacity of the NBE is weak at this time (Harvey: 1995), regulation may not be considered very critical. Lack of capacity to supervise banks may result in delay of regulatory and other decisions. The international pressure from organizations such as IMF may change things very fast in Ethiopia in this regard.

According to Sinkey, the five primary barriers to competition are price or interest rate controls, product restrictions, organizational constraints, geographical restrictions, taxes both (explicit i.e., on income) and implicit (e.g., via reserve requirements and deposit insurance fees). Currently, the floor interest rate on savings account deposits is 6%. Interest rate on loans is also regulated indirectly if not directly by the NBE.

INTEREST RATE RISK: According to Hempel, Simonson and Coleman (1994), the bank's interest rate risk is related to the changes in assets and liability returns and value caused by movements in the interest rates. In the banking industry, interest rate risk is extremely important. Yet, the CBE being the dominant bank in the country, this may not seem a problem in the short run.

But we should not ignore the prescriptions of the IMF to the Ethiopian government about banking in general and the CBE in particular. IMF demanded the Ethiopian Government for the split of the CBE into four or five competitive banks. It has also demanded payment of interest on the current account deposits. The major source of profit for the CBE is the non-interest bearing deposits. The non-interest bearing demand deposits were between 50 to 60% of the total deposits (Harvey: 1995). If the Ethiopian Government makes concessions to the demands and preconditions of the IMF, the interest rate risk will be a priority to the bank.

CUSTOMERS: In the past, when the CBE was at monopolistic position and its customers were its captives, there was little or no need to develop new products and services for the satisfaction of customers. In the future, there will be intense competition. Hammer and Champy (1994) summarized the dominance of customers in the world of competition as sellers no longer have the upper hand, customers do; customers now tell suppliers what they want, when they want it, how they want it, and what they will pay. This will reduce the profits of the CBE due to increased cost for customer service. The alternative way is to improve the internal efficiency of the banks to maintain the profit volume.

KAPITAL ADEQUACY: According to Sinkey, capital adequacy can be interpreted as financial leverage, and thus as a measure of risk exposure. This is also an important factor for banks. The capital risk of a bank indicates how much asset values may decline before the position of its depositors and other competitors is jeopardized (Hempel, Simonson and Coleman: 1994). In its current position, CBE is very strong in the capital adequacy aspect.

HUMAN RESOURCE: It would be very appropriate if we add the human resource and change to the above factors. The human resources and their skills of the CBE should be considered above everything. The top management of the CBE has clearly stated the importance of the human resources in its five year strategic and annual plans. This is because the natural source of comparative advantage of the 21st century is the human resources of organizations.

CHANGE MANAGEMENT: Change is constant. Change has become both pervasive and persistent (Hammer and Champy: 1994). The speed or pace of change is also fast due to the global nature of competition and other internal reasons. As stated in chapter one and three, the top management of the CBE faces strong change resistance for process reengineering and computerization from the traditional bank managers and employees.

On the other hand, the new generation of the bank including the top management wants radical change in the bank to adjust the bank to the requirements of the environment. As Kurt Lewin (1951) stated (quoted in Mabey, Thomson and Farmer: 1994) the driving forces and restraining forces (supporting and opposing forces) must be identified and managed in a balanced manner. The CBE has developed a model for managing the change as shown in Figure 4.4.

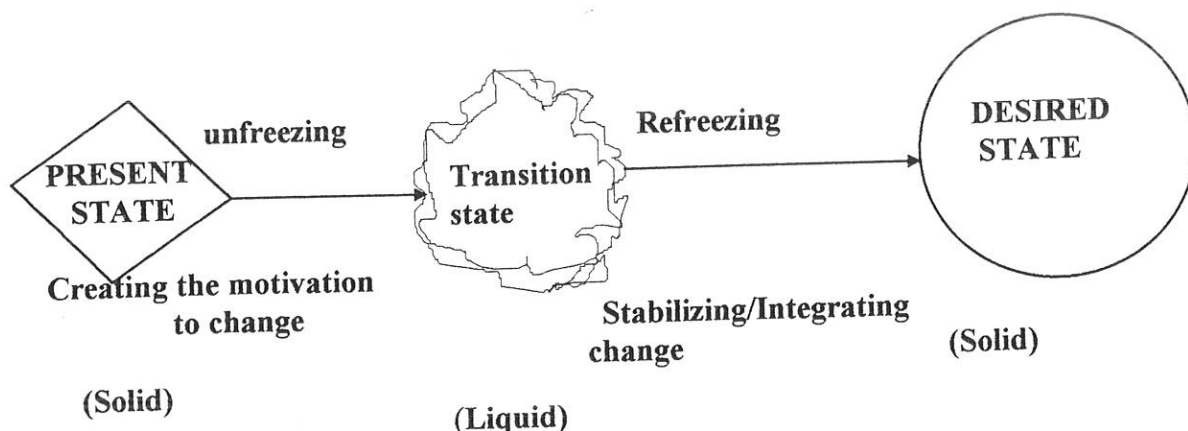


Figure 4.4 The change process at the CBE from the reengineering team working paper.

This model is known as three stage model of Kurtz Lewin (1947) (quoted in Davis and Olson:1984). The stages are unfreezing, change and refreezing. The stages and the descriptions are as shown in Table 4.3.

Table 4.3 Three stage model of Kurtz Lewin quoted in Davis and Olson, 1984

STAGE	DESCRIPTION
Unfreezing	Create a climate for change and get contracts
Change	Analysis, design, development and installation
Refreezing	Institutionalize the new system

According to Davis and Olson, this model emphasizes the fact that stable organizational systems with supporting political coalitions need to be disturbed before change begins. The parties involved need to want the changes. When the existing system is disturbed, the solid is changed into liquid. Davis and Olson conclude that after the change is complete, it is important to institutionalize (refreeze) the change by procedures, training and evaluations. The specific reasons for the strong change resistance in the case of CBE and the suggested solutions are discussed in chapter five of this study.

As stated above, the information requirements of the top management of CBE in the critical success factors can be discovered in these lines. For instance, the borrower information is examined in the fifth chapter.

4.8 Evaluation of Process Reengineering: the case of Andenet branch

According to the Reengineering handbook (1994 quoted in Manganese and Klieg: 1994), reengineering is the rapid and radical redesign of strategic, value-added business processes- and the systems, policies and organizational structures that support them-to optimize the work flows and productivity. For Hammer and Champy (1994), reengineering a company means tossing aside old systems and starting over; it involves going back to the beginning and inventing a better way of doing work.

Reengineering starts by identifying and targeting value added processes. Process is an interrelated series of activities that converts business inputs into business outputs (Hammer and Champy:1994 and Manganell and Klein:1994). Examples of such processes are fulfil deposit of cash to a customer, fulfil withdrawal of cash from one's account by a customer, develop a strategy, grant loan to borrower. These processes are composed of activities. For example, fill a deposit voucher form by a customer, record transaction on ledger, verify record, approve withdrawal by a manager and pay cash by a cashier are activities in the fulfil withdrawal process.

According to Manganell and klein, there are three primary types of activities in a business process: value-adding, hand-off and control activities.

VALUE ADDING ACTIVITIES: Value adding activities, the authors state, add something of importance to the customer- a product or service that a customer needs, wants, and is willing to pay for. The customer cares, for example, how he/she withdraws or deposits money and cares very little about what is happening in the paper intensive back office of the banks.

HANDS-OFF ACTIVITIES: Hand-off activities, the authors further elaborate, are those everyday transactions that move pieces of work across functional and departmental boundaries within the company such as transferring form, picking and putting form, e-mail etc.

CONTROL ACTIVITIES: Control activities are there to control the hands off activities across the boundaries. The hand off and control activities in a process are not value adding. The hands-off and control activities should be eliminated and the remaining activities should be realigned.

Not all processes are subject to reengineering. In most organizations, value adding and strategic processes that are subject to reengineering are no more than six (Ibid.). When process is reengineered, it necessitates changes in systems, policies, procedures and organization structures. Reporting systems must be consistent with the new system. Policies must be revised. Organizations that support the value adding process must be improved. If the reporting system continues to generate data in the old way, the process is not reengineered (Ibid.).

When we examine the process reengineering at the Andenet branch (pilot branch for reengineering) of the CBE, the target processes are deposit to accounts, make payments and cash checks. As stated in chapter three, customers can withdraw up to Birr 5000 in savings account and up to Birr 25,000 in current account from the bank in a single step or single window shopping model. The new system has brought significant improvements (more than 70%) in reducing the waiting time of customers. It has indicated the greatest potential in improving the accuracy, speed and reducing the cycle time.

This indicates to what extent the existing customer service has a serious problem. Since many developing countries have very deficient information recording and dissemination systems, the marginal returns from simple information technology are likely to be higher in these countries than in industrial economies where information systems are already quite sophisticated (Bank of America: 1996).

However, in the CBE paper intensive back office activities and the reporting requirements remain unchanged. The paper intensive back office activities in the banking environment are laborious, time consuming and reduce the status of the staff to paper pushers. As stated, the process reengineering at the front office of the bank has tremendously improved the productivity of six tellers. The target should be to improve the productivity of everybody at the Andenet branch. If the CBE continues to improve only the activities of tellers through its strategy of replication of reengineering of the Andenet branch, it will be able to improve the productivity of three to four tellers per branch throughout the 57 target branches of the CBE for LAN/WAN.

If that is the case, it is difficult to say that the present practice is process reengineering. Presently, there is a tendency among managers in most organizations to call any improvement effort as process reengineering. According to Manganell and Klein, process reengineering has been loosely used to describe almost every sort of management improvement program under the sun. However, there are other programs that aim at improving performance with different scope of change, assumptions, orientation and improvement goals.

According to the above mentioned authors, incremental changes to improve business performance typically take one of several forms such as automation, quality program, reorganization or restructuring, downsizing or rightsizing. The common forms of improvement programs vs. Reengineering are indicated in Table 4.4.

Table 4.4 Reengineering vs. other programs

	Reengineering	rightsizing	restructuring	TQM	automation
Assumption Questioned	Fundamental	Staffing	Reporting relationships	Customer Needs and wants	Technology applications
Scope of change	Radical	staff, job responsibilities	Organization	Bottom up	Systems
Orientation	Processes	Functional	Functional	Processes	Procedures
Improvement goals	Dramatic	Incremental	Incremental	Incremental	Incremental

Source: Manganell and Klein, p.15.

As stated in chapter three, the CBE's process reengineering considers functional organization, procedures/processes at the front office, job design and authority-responsibility relationships with limited scope. These are the products that will be changed when processes are reengineered.

If the control activities are not eliminated and the back office is untouched, it is very difficult to say the effort at the CBE is process reengineering. This is the extension of the corporate level restructuring effort of the CBE to the Andenet branch. It is restructuring of the Andenet branch supported with technology.

The organization of Andenet branch has been changed from functional to customer bases of departmentation. The change in the Andenet branch empowers tellers up to a certain limit. This is partly process reengineering which is started but not completed. Reengineering also requires skilled human resources. According to Peter Drucker (1994 quoted in Ettore and Romano: 1994), corporations must put human resources at the center of their radical transformations i.e., reengineering.

At the CBE, the reengineering team members are young, ambitious, energetic, highly motivated new graduates and proud of their achievements. However, no formal training is offered and even they do not have material access to the literature on reengineering. The bank claims that they have worked with the consultants of the CBE. Process reengineering without the basic and minimum skills is extremely difficult. Unless properly managed, process reengineering is risky and the failure rate before 1994 in USA corporations was 75%.

The team, however, has recognized the enabling role of information technology of process reengineering. Without information technology, process can not be reengineered (Hammer and Champy: 1994). Technologies such as expert systems, telecommunication networks, decision support tools, wireless data communication, high performance computing etc., have helped organizations to break the rules that limit how they conduct

their work (Ibid.). The summaries of the authors' explanations for the above new technologies are briefly explained below.

With the assistance of the expert system, a generalist can do the work of an expert which may be complex. With the help of telecommunication networks, businesses can get the benefits of centralization and decentralization simultaneously. The old rule of choice centralization versus decentralization is no more a controversy. Decision support tools enable everybody in an organization to make decision. In other words, decision making is no more the domain of managers in an organization.

Using wireless data communication and portable computers, field personnel can send and receive information wherever they are. This will eliminate the need to have offices for field personnel to receive, store, retrieve and transmit information. The development of high computing changes the old rule of plans get revised periodically. Instead, the information technology enables planners get plans revised instantly. In the old system of banks, the tellers must find where the customer card is located. But the information technology will tell the tellers where the customer card is. For the CBE which has widely distributed branches, these technologies will be extremely important. However, unless the CBE completes the WAN/LAN project, it is impossible to bring radical change through process reengineering at all levels of the CBE. Therefore, the management of the CBE should complete the WAN to get such tremendous benefits of process reengineering.

So far the CBE has changed the processes mentioned. But, slow change is inadequate in process reengineering. As has been stated in chapter three, employees and managers did

resist the process reengineering. This has been extremely frustrating to the reengineering team. The symbolic role of top management has been extremely important to sell and implement the idea of process reengineering. If the resistance is too the extreme, the bank should replace those who resist by those who accept the change. But the team must be behind the curtain and the top management must be at the front for such radical decisions if one aims at success.

Who should reengineer the process? Is the fundamental and basic question in process reengineering effort. According to Hammer and Champy (1994), the structures of the reengineering group are leader, process owner, reengineering team, steering committee, and reengineering czar. The responsibility of the leader is to authorize and motivate the overall reengineering effort. He or she must be from the senior executive group. Process owner is a manager who is responsible for a specific process. The reengineering team is a group of individuals dedicated to reengineering of a particular process. The team diagnoses the existing process and oversees its redesign and implementation. The steering committee, on the other hand, is a policy making body consisting of senior managers who develop the organization's overall reengineering strategy and monitor its process. The reengineering czar is an individual responsible for developing reengineering techniques and tools within the company. The Authors also recommend one team for one process reengineering.

At the CBE, structurally, the reengineering team is accountable to the top management. Process owners did not participate. For credibility and acceptance by the employees of the CBE, the reengineering team members must be composed of experienced, credible and senior staff of the CBE.

In summary, automating the existing processes of CBE will not bring significant change in the productivity of employees. This is because as it is detailed in chapter five, the present processes were designed with the absence of the power of telecommunication and computers in the industrial age. But now it is the information age which demands the reengineering of the current processes. But the infrastructure must be completed so that the bank can reengineer cross functional processes.

CHAPTER FIVE

PROPOSED STRATEGIC INFORMATION SYSTEMS PLAN

5.1 Introduction

The objectives of IT at CBE are both internal and external. It is speculated that productivity of employees will be improved. The manpower will be redeployed to value adding activities. Process reengineering will be replicated at other branches to satisfy the internal and external customers. The internal efficiency can provide comparative advantages to CBE. IT will help CBE to improve the quality of customer service. It is expected that the improved customer service will maintain the competitive advantages of CBE.

At the middle management level of CBE, control of the banking operations will be improved and errors can be easily detected without delay. At the higher levels of the organization, managers of CBE can make informed and timely decisions. The top management of CBE also anticipates that the performance of the banking industry of Ethiopia will be at acceptable standards. In other words, the top management of CBE aims towards banking excellence in Ethiopia. Strategically, we can say that CBE follows a policy of using IT as defensive weapon to maintain its position.

From the discussion and interviews and review of related documents, the basic problem of CBE is that of systems human resource. Other problems are possible entry of foreign banks, delay of the IT project, slow credit processing and problems of getting up to date

information and change resistance for the process reengineering and the automation. Possible strategies on these aspects are suggested for consideration in subsequent sections of this chapter

5.2 IT Human Resources Education Strategy

As stated earlier, the strategic benefits of IT are unlimited. But IT requires skilled manpower in the different areas such as systems analysis/designer, programmer, operators and engineers. But, the basic question that must be raised at this time is “Does CBE have the human resource capacity to get the unlimited benefits of IT? The answer is no. Therefore, the basic strategy should be to build and rebuild its human resources both at professional and end user levels.

The Ethiopian Educational system has been unresponsive to IT human resource requirements of the Ethiopian organizations. As a result, the external environment as a source of talented and well qualified IT personnel for CBE has been very limited. As indicated earlier, CBE failed to get appropriate candidates for the two top positions of the Information Services department. Under the circumstances, the available option to CBE is to build and rebuild its own human resources at all levels; as securing such personnel is not feasible for many reasons. IT personnel is becoming a global problem and it may be too expensive for CBE if it opts for employment of expatriate staff.

Earl (1988) called this as positioning strategy. Positioning models, according to Earl, are designed to help managers develop and improve information technology capabilities

within their companies, with the objective of implementing business strategy in an effective way.

Organizations throughout the world face IT human resource problems in the present age. According to Keen (1988), for the next decade, the main management problems concerning telecommunications and computers will relate to people, not technology. The focus of attention has shifted from the technology to the human resource aspects.

Earl classified the IT education areas into four categories for positioning strategy:

Refocusing- raising executive management awareness and understanding of how important IT is for the business. This is not a problem at CBE because of the exposure of the top management group to the role of IT in the banking operations in the outside world. The problem of top management is implementation of its strategies.

Retooling- deals with developing management or applications skills and knowledge to follow up any new initiatives identified in refocusing. This will improve the supervision ability of the top management for some systems initiation in the organization. This is usually the result of refocusing effort.

Reskilling- focuses on educating and training the IS community on technology, management, and business skills for the new IT era. This part is extremely important to CBE for the reasons mentioned earlier. CBE has started from the scratch and has to go a long way to solve its human resource problems.

Reinforcing - building top management understanding, confidence and commitment to support the effects of other programmes. This will depend upon the success and the smooth running of the WAN/LAN at CBE.

As stated, the most crucial strategy for CBE is reskilling. Management did consider this at the early stages of the IT project as part of the system implementation. But the training was delayed with the delay of the IT project. Later on, CBE management has found very expensive to educate its staff in foreign countries. However, the potential of Internet and distance education for staff training have never been considered. Presently, distance education through the Internet has been very popular and economical means of training. In the short run, this is a feasible option to educate more staff at acceptable cost. Distance Education in Africa has been used to pursue entirely conventional educational ends (Talero and Guadette: 1994). The other alternative is to bring expatriate trainers from countries such as India or Brazil. India has highly skilled and low cost workforce in information technology (Ibid.). The emphasis of CBE should be also on software development because it is the software that adds value to the organization.

Short term local training in collaboration with Addis Ababa University such as SISA, USIS, Ethiopian Airlines and International Livestock Research Institute can help CBE to solve its problems. World Bank also gives assistance in this area.

The training program should not be limited only to IT professionals. It should target business professionals and the total workforce. It is surprising when one could not get readily available data about the number of computer literate employees in the manpower

planning division of CBE. The IT project office, however, estimates the highest rate of computer illiteracy rate at CBE. Education in IT and other areas make the difference in productivity. Education is the main theme of the story of the differences in growth between sub-Saharan Africa and the East Asia high performers (World Bank quoted in Talero and Guadette: 1995).

However, the training budget and number of trainees in IT at CBE are not significant. For instance, the training expenses in 1994/95 and 1995/96 have been Birr 201,555 and Birr 308,208 respectively. The training expense is less than Birr 50 or US \$7 per person per year. This is immaterial for a multi billion Birr business organization in Ethiopia with a multi-million IT project. The end user training effort is also not as to the requirements of the envisaged major WAN. For example, the user training in software applications packages for the last three years is as shown in Table 5.1

Table 5.1 Number of Trainees in application packages for three years

Areas of Training	Number of Trainees in software applications as ended in June		
	1995	1996	1997
For Front office, Computer operators	11	32	54
Back office (word processing, spreadsheet and dBASE)	30	97	NA

NA= Not available

But to get the benefits of IT for efficiency, effectiveness, and strategic advantages of the end user computing, user education in software applications is extremely important. There is also a good potential to develop skilled end users because the qualified

manpower at the CBE is relatively good. As of December 1997, there were 1 PhD(.02%), 1 MD(0.02%), 26 (0.5%)M.Sc./M.A., 325 (6.6%) BA/B.Sc., 1694 (34.2%) Diploma holders from the 4959 employees of CBE. About 41.3% of the staff have diploma and above qualifications. But the professional level qualification is about 7.1% of the total workforce. The target should be to make every professional computer and information literate.

5.3 Entry of Foreign Banks

Currently, the Ethiopian Government does not allow the establishment of foreign banks in the country. The logic behind this decision is to provide some levelling period to the inefficient and infant domestic banks (Interview at the NBE: 1998). However, there are some policy indicators that foreign banks will be allowed to operate in Ethiopia in the near future. At the CBE, there is fear about the possible entrance of foreign banks that provide information intensive banking products to the customers. If the foreign banks enter into the Ethiopian financial market, it is true that this will be a challenge to the CBE. This is because the foreign banks know very well how to invest, penetrate the market and get the return on investment by using modern technology.

But the basic question is "Will foreign banks invest their capital in Ethiopia at this time or in the near future"? The reality is, let alone for investment of capital, most developing countries are unacceptable even as export markets. Most African countries like Ethiopia are low income and agriculturally dominated nations. For instance, consumer loans are not provided by CBE or any other bank due to the speculated and possible high risk of loan losses. According to Jewell (1993), exports to developing countries (e.g., Ethiopia)

are limited because of low, ineffective demand reflecting the poverty of these countries. Jewell further stated that the Business Environment Risk Index (BERI) assesses countries on a scale of 0 (unacceptable) to 4 (superior condition) on 15 economic, political and financial factors. The specific factors are political stability, attitude to foreign investment and profits, attitude to nationalization, degree of inflation, balance of payments, bureaucratic delays, economic growth, currency convertibility, enforcement of contracts, low cost and productivity, professional services, state communication infrastructure, local management, short term credit arrangements and loan facilities. Ethiopia's unique problem of urban land lease policy is also another addition to the factors.

By taking the aggregate scores of each of the variables, the suitability of a country can be assessed. The score for Ethiopia on the BERI scale may not be good in any case when a foreigner makes the evaluation. The other problem of Ethiopia is information about the potential investment. In Ethiopia, the available information seems to be more of propaganda. In propaganda, rather than being objective and verifiable, much information is used to shape attitudes, beliefs, actions and decisions (Land and Kennedy-McGregor: 1987 quoted in Galliers and Baker: 1994).

The problem of strong legal system to enforce contracts affects banks more than any organization. The lengthy court procedure has been a major problem for loan recovery for CBE and other banks in Ethiopia. Of course, the Foreclosure Law has been enacted by the Ethiopian Government in 1998 to enable the banks sell the collateral pledge in accordance with the contract provisions of the banks and the borrowers. But its implementation is to be tested yet. In this connection, some legal experts in Ethiopia

argue that market economy without a strong legal system is very unlikely to attract foreign investment.

The most critical variable for foreign investment decision, however, is the free movement or mobility of capital in a given country. According to the interviewees at CBE, the Ethiopian Government may not allow the free mobility of capital probably in the near future. If that is the case, the entry of strong foreign banks into Ethiopia may not be seen a problem to CBE at least in the short run.

If, by virtue of chance, the foreign banks start operation in the Ethiopian financial market, their location will be Addis Ababa where the country's relatively rich group and business have concentrated. For example, the Addis Ababa region dominates both deposits and lending of CBE. At the end of 1992, 73% of deposits and 84% of loans and advances were attributed to the Addis Ababa region (CBE: 1991/92). However, in practice, most foreign banks test a certain market first on agency bases rather than on direct investment which still gives more time to CBE to adjust itself to the global competition.

If CBE accelerates its WAN/LAN at least for its 33 branches in the Addis Ababa region and its head quarter offices, it will level the playing field of CBE and the foreign banks in the shortest possible time. The objective of CBE, as has been stated by Ato Habteselassie, is towards banking excellence to meet customer expectations and the global competition. This is a good policy to be followed regardless of possible entry of local or foreign banks into the Ethiopian financial market.

5.4 Project Management

The newly IT project of CBE has been delayed for several months. Now, there are also delays in the completion of the different phases of the grand IT project. The explanations are many as stated in chapter three of the study. But the effect is that the project has suffered from cost and time overruns. McFarlan (1985) considered the excess costs and time overruns as the major IT project risks.

According to McFarlan, there are three major risk factors: project size, experience with the technology and project structure. According to him, the greater the time and expense involved in a project, the greater the risk. If a project team is not familiar with the IT (hardware, operating systems or telecommunication network), risk increases. If we see the IT project at CBE, the size is huge, the IT staff do not seem to be familiar with the technology and the project has different phases and structures. However, the hardware installation is handled by the vendor.

To manage IT projects or system projects, we have to know the types of projects. MacFarlan identified four major types of projects as shown in Figure 5.1

T e c h n o l o g y	Structure		
	Low	Low	High
		Low structure Low technology	High structure Low technology
		Low structure High technology	High structure High technology

Figure 5.1 Project types, Source: McFarlan, Harvard Business Review, 1985.

Since the project at this time is at conversion of the system from the closed mainframe to the open client/server network, it is highly structured. The systems conversion also deals with the accounting transactions and routine banking operations. The next phase deals with connection of the branches at Addis Ababa and the head office into the WAN. As a result, both the structure and the technology are high. The technology contains the state of the art computers and the latest distributed data processing system.

According to McFarlan, for high structure-high technology projects, the tools required for project success are high internal integration, moderate formal planning and moderate formal controls (see Table 5.2 for explanation and use of tools). In such projects, the project manager must be able to manage technicians, maintain team work and make sure that all design issues are well understood. In the case of CBE, the interim solution is completed but the other phases of the project will continue. For that matter, the bank will have a series of systems projects in the future and the possible tools for the different structures are listed below.

Table 5.2 Project management tools and their uses

No	Types of tools	Use of the tool
1.	External Integration tools • selection of user as project leader • Participation of users on steering committee • Users responsible for approving changes in design	Enable the project team to communicate effectively with users
2.	Internal Integration tools • Selection of experienced IT professional as project manager • Regular review of project status • Selection of team members with previous work relationships	Used to manage the internal interactions among project team members
3.	Formal planning tools • Use of network project management tools such as PERT and Critical Path Method • Selection of project phases and activities • Formal project approval processes	Designed to estimate the time, cost and resources needed to complete a project
4.	Formal Control tools • Reviews of project status as compared with plans • Development of strategies for change control • Regular presentations on outcomes	Help managers evaluate progress on completing project activities

Adapted from McFarlan, 1985 and Scultheis and Sumner, 1989.

High structure-low technology projects require formal control, formal planning and moderate internal integration tools. Risk is low for such projects. Low structure-low technology projects, however, demand high external integration, high formal control and moderate planning tools. Such projects demand user involvement and direction to reach agreement on project design specifications. Finally, project with Low structure-High technology requires high external integration and high internal integration tools. Such projects do have the highest degree of risk. According to McFarlan, project managers must have technical experience and the ability to communicate effectively with users.

The team must also be aware of the technical issues and developments in the external environment.

5.5 Change Management and Process Reengineering

Most business processes were developed before computers and communications even existed (Davenport and Short: 1994). Most processes in organizations are ad hoc additions to an organization at the different times of the organization's existence. When organizations automate the existing processes without process redesign, communication problems are created due to problems in integration. Automation of the existing system brings little improvement in the productivity of employees.

If IT is implemented with the existing processes, it will emerge as a key inhibitor of change (Worden: 1997). Being aware of this reality, CBE has initiated process reengineering to redesign the processes. But the change resistance from branch managers and employees has been very frustrating to the top management of CBE. The resistance will be more serious when the process reengineering is extended across the corporate level because it affects many people at all levels. Change management has become then one of the critical issues to the top management of CBE. In managing change, the basic thing is to know the causes of change resistance.

If the resistance is people oriented as in CBE, the implementation strategies should include training, coercion (e.g. policies), persuasion and user participation (Davis and Olson:1984). CBE has been training its staff at the Andenet branch intensively about reengineering but with little effect. A lot has been said about causes of change resistance.

For people related change resistance, Burack and Torda (quoted in Synott: 1987), identified four resistive forces at work as predictability, inconvenience, skepticism and confused goals all of which are the cases at CBE.

PREDICTABILITY: The ability to predict cause and effect connections is important to people. The employees at the branch banks predict that the introduction of IT will create insecurity to their jobs. This can create stress and thus resistance to change. According to Scheltheis and Sumner (1989), feelings of insecurity may cause people to sabotage the success of a system at worst or simply to resume traditional work methods. In the case of data entry stations, employees may enter wrong data since data entry function is forced. If the system is designed in some areas for individual use such as decision support systems or expert systems, employees may ignore the use of the system and continue in the old way.

INCONVENIENCE: People do not like to disturb what is comfortable. The branch managers and the employees have been working in the labour and paper intensive processes for years. Most processes are also designed under Taylor's work organization, task decomposition and job measurements (Davenport and Short: 1994). But process reengineering is basically the opposite of this towards integrating the different activities. When some activities are eliminated, the new process may be inconvenient to the traditional bankers. The model CBE uses necessarily creates disturbance.

SKEPTICISM: Some people genuinely believe that the change proposed is not as good, let alone better, than the status quo. But for a rational person, the present inefficient procedure can not be considered as the best one in many dimensions of measurement for

CBE. But for those who do not know bank operations other than CBE, the existing system may seem better than the expected system.

CONFUSED GOALS: Unclear, misunderstood, or poorly stated goals result in people pulling different directions. From the discussion with the reengineering team, the researcher could not understand the whole essence of process reengineering. The team wants to replicate the present achievement to branch banks. However, the present achievement can be introduced in all branch banks without the concept of process reengineering but with a simple procedure manual. For example, the Addis Ababa branch of CBE provides customer service in a single window but the process is not reengineered.

The reengineering team claimed that it has identified about sixty processes in the Andenet branch for the targeted processes. But they consider activities as processes. Such number of processes can never exist at one single and retail branch. For that matter, sixty processes can never exist at the entire CBE level. As stated earlier in chapter three of the study, the number of value adding and strategic processes can not be more than six in an entire organization. If the process reengineering team members do not have clear understanding about process reengineering, training may not reduce the change resistance. Rather, it may create some confusion among managers and employees. As a result, branch managers and employees may feel that the new model is not workable.

As a guideline for process reengineering, CBE can adapt the five major steps of Davenport and Short (1994) Process redesign or reengineering model. The steps are:

develop the business vision and process objectives, identify the processes to be redesigned, understand and measure the existing process, identify IT levers, and design and build a prototype of new process. The major steps and their subsidiary functions are stated very briefly as follows:

- **Develop Business Vision and Process Objectives.** Prioritize objectives and set stretch targets. The possible objectives are cost and time reduction and improve output quality and quality of work life/Learning/Empowerment.
- **Identify Processes to be redesigned or reengineered.** Identify processes to be redesigned. There are two approaches: exhaustive and high impact approaches. Exhaustive approach relates to identifying all processes within an organization and then prioritizing them in order of redesign urgency. High impact, on the other hand, relates to identifying only most important processes such as loan grant and money transfer or those most conflicting with the business vision and process objectives.
- **Understand and Measure Existing Processes.** Identify current problems and set baseline. Hammer and Champy (1994) suggested some methods of understanding the problems of the existing processes vis-à-vis: detailed analysis of the processes starting from the customer (internal or external); watch the customers how they do the activities in the processes and team members can do the processes themselves to better understand it.

- **Identify IT levers. Brainstorm new process approaches.** The specific applications and capabilities of IT are many and unlimited. But, in general, IT improves co-ordination and information access across organizational units.
- **Design and Build a Prototype of the Process.** Implement organizational and technical aspects. Use IT as a design tool such as Computer Aided software Engineering (CASE), Rapid Application Development and understand generic design criteria and creating organizational prototypes. User participation in the design will minimize system related change resistance. CBE should also replace those who resist the change by those who accept the change.

5.6 Credit Investigation and Prior Loan Information System

As stated in chapter three, the basic reasons for the delay in credit processing at CBE are lack of skilled manpower and accurate information about loan applicants. The bank can use expert systems for loan extension. But for the information about loan applicants, the CBE should use different sources and means to get information about borrowers/loan applicants. The most common method to get information about loan applicant is credit investigation. According to Hempel, Simonson and Coleman (1994), the purpose of credit investigation is to acquire enough information to determine loan applicant's willingness and capacity to service the proposed loan. The aim is to develop understanding about the borrower's character, the true purpose of the loan, the primary sources of repayment (collateral or guarantor).

The authors further state that there are three fundamental sources of information: customers or borrowers, internal and external bank sources. Customer interview can help bankers to know about amount of loan requested, source of repayment, collateral or guarantor, name of previous and current creditors, list of primary customers and trade suppliers, firm's accountant, principal, shareholders and officers, and personal and business histories. Information should also be obtained about the latest three or more years of business financial statements, income tax payments, borrowing authority and evidence of insurance. Supporting information about market, production process, principal owners and executives, experience and educational backgrounds, planning practices and the like should be included.

The internal sources of information are files on previous or current borrowings, checking account activity and deposits. If there is property as collateral, it should be appraised. The source of information could be also the external environment. In Ethiopia, there are no such reliable sources. But the two most important sources of information can be the Inland Revenue Administration or Finance Bureau for income tax payment and Ministry of Trade or Finance Bureau for registered capital of the loan applicants. The existing inter-bank information exchange is a good practice but it is time consuming and concentrates only on existing loan status or loan arrears.

CBE's recent practice is use of financial information about its corporate customers. Currently, there are about 200-250 customers in this category (CBE does not know the exact number of corporate customers). The information is maintained manually and can be time consuming to evaluate the financial statement history of the corporate customers. The corporate relations officer stated that getting customer information is a deep rooted

problem of CBE. Some customers have been dealing loan transactions for 20 to 30 years but no proper information about them is readily available at the CBE.

Bankers generally use so-called spreadsheets for recording a credit applicant's financial information (Ibid.). Spreadsheets allow or permit the financial analysts to organize data in a uniform and consistent manner for many years. It also allows easy comparison of the past and present financial information about customers. The credit performance of good corporate customers can also be published and serve as publicity for borrowers. Annual reports about performance of customers can also be published.

But still the best method is to establish a prior loan information system about potential borrowers. If prior loan information system is developed independently, it will enable the top management of CBE to decentralize decision making and control the loan extension practice of branch managers and loan officers. In terms of cost-benefit analysis, the cost of prior loan information system for a maximum of 100,000 potential loan applicants at the country level is immaterial as compared to the possible loan losses of CBE. CBE can also use outsourcing strategy to develop prior loan information systems.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

At present, strategic information systems planning has no single and well-established methodology to address all the variables. For this reason, multiple methodologies are being used for different purposes. In this study, two major models have been used to examine the IT infrastructure and the developmental stage of the information systems at CBE, namely: the “information resource architectural planning” and “the revised stages growth” models. The information resource architectural planning model is used to assess the strengths and weaknesses of IT infrastructure while the revised stage growth model is used to examine the developmental stage of the information system of CBE.

The major emphasis of this study has been in the area of strategic applications of IT in CBE and this is assessed using Parsons’ impact of IT model. IT can be applied for strategic purposes in many areas. It may help organizations to improve productivity of employees, to reduce cost of operations, to differentiate products of a company from competitors, to reach certain target market niche and the like. But, to get such comparative and competitive advantages of IT, the organizational and human resources capacity should be very strong.

CBE has to go a long way to build its human resource and organizational capacities to the required level. According to the findings of this study, in addition to the human

resource problem both in quantity and quality, CBE has also other problems. It is estimated that there is a high level of computer illiteracy. Networking of the bank branches in a WAN system has been delayed for some time. This is serious, as most of the strategic applications of IT are dependent upon the successful completion of the WAN at least for branches in Addis Ababa and the head office.

There is also manpower placement problem at CBE. The IT project office is headed by a business background person. Business knowledge at this time of the project phase is not as important as competency in IT. The positions for the Director of Information Services and the Information Officer for IT are still vacant positions when the CIO is extremely important to lead the IT towards the highest stage level. The possible high turnover of systems staff is also a potential threat to CBE given the shortage of skilled manpower in the country.

The findings of this study also indicate that computerization of the existing processes alone will not bring significant improvement in the productivity of employees and in the quality of customer service. This requires process reengineering. In this connection, the pilot process reengineering of customer services currently under way at the Andenet branch is facing strong change resistance from the branch managers and employees due mainly to fear of job insecurity. What is more, the current process reengineering under testing is more of improvement program than radical change in process.

The findings also indicate that policies for systems security, development, documentation, programming, distribution of personal computers etc., do not exist at the

moment. This fact, however, will create long run problems in the development of an integrated information resources architecture at CBE.

According to the findings, the strategic planners do not get the required information in the right time. There is also delay of information from the official sources for several months. But business strategic plans without integral strategic information systems plans are outdated ones. The existing information is reactive to the demands of the strategic planners mainly on macro environmental elements. It misses important and immediate variables. The support of IT to the strategic planners at this time is limited. To get the maximum benefits from IT, it should support employees at all levels of the organization.

Having said the above, there seems to be a great potential to accelerate IT/IS at CBE to the strategic usage level due to the absence of the isolated mainframe data processing under its disposal in the past. Other banks in Ethiopia can also learn a lot from the experiences of CBE. Therefore, improving the applications of IT at CBE has equal relevance to the modernization of banks in Ethiopia. The success of IT at CBE has also national significance towards the modernization of the country in the information age.

6.2 Recommendations

As stated earlier, strategic information system has emerged in the mid 1980s with the development of business strategic planning. Strategic information systems plan has become an integral part of business strategic planning and plans. At CBE strong strategic information systems plan is missing within the business strategic plans.

Therefore, the top management of CBE has to take a series of measures to upgrade the bank's information systems to strategic purposes and levels.

Based on the analysis of facts and findings, the followings are recommended to upgrade the information systems of CBE to the highest level.

1. The two positions in IT/IS, the Director for Information Services and the Chief Information Officer for IT, should be merged under one common title of Chief Information Officer (CIO). The position of the CIO should also be upgraded from the director status which is equivalent to assistant vice president to the vice president level.
2. Policies for systems security, distribution of personal computers, training of systems staff, systems development methodology and documentation, role of users in systems development, establishment and role of steering committee, project initiation and approval etc., should be established. In other words, information resource policies should be formulated and adherence to the policies should be monitored. Systems security aspect should be given special emphasis.
3. The IT project office at this time needs a strong leadership with high competency in information technology to effectively manage the technical persons and establish effective communication link with top management. Therefore, the office should be headed by a technically qualified and competent person rather than by a person with business background.
4. The impact of process reengineering on cost reduction, productivity and customer service improvement are significant. But the process reengineering at CBE is not

complete and radical as per its requirements. Therefore, business process reengineering should be reconsidered, and the structure of process reengineering be re-examined.

5. As stated earlier, the human resource capacity of CBE is not strong. As a result, due emphasis should be given to build the human and organizational capacity of CBE both in systems personnel and end user levels. Modern technologies such as multimedia, CD-ROM, Hypermedia and the Internet access should be utilized in educating the IT/IS community.

6. The top management of CBE should emphasize on how to use information for decision making. This is because it is the use of information for decision making and planning that will enable CBE to get strategic advantages of IT.

7. CBE should consider the possibility of selling information as a product to the Ethiopian business community using its domestic and international access to information sources particularly in the import and export areas.

8. The present informal intelligence system should be changed into formal intelligence system and organized form so that it could be used to collect intelligence information both from within and outside the organization.

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APPENDICES

APPENDIX A: LIST OF INTERVIEWEES

- 1. Ato Habteselassie Hagos, Vice President, Marketing and Corporate Planning**
- 2. Ato Girma Negash, Assistant Vice President, Corporate Planning**
- 3. Ato Tamiru Amenu, Manager, Strategic Planning**
- 4. Ato Ashenafi Feyisa, Head, Risk Analysis, Research & Planning**
- 5. Ato Abay Mehari, Head, Credit Information**
- 6. Ato Tesfaye Teshome, Deputy Manager, EDP, National Bank of Ethiopia**
- 7. Ato Samuel Bekele, Senior Systems Analyst**
- 8. Ato Abraham Alaro, Member of Process Reengineering Team**
- 9. Ato Abinet Takele, Member of Process Reengineering Team**
- 10. Ato Tesfaye Abebe, Member of Process Reengineering Team**
- 11. Anonymous, three IT staff of the CBE and two experts at the NBE.**

APPENDIX B: INTERVIEW GUIDE, IT HEAD

- 1. What are the objectives of your department?**
- 2. Organizations and departments do have critical success factors for the success or failure of the organization. What are the critical success factors to the performance of our department? For CBE?**
- 3. How do you measure the critical success factors?**
- 4. Do you have IT strategies ?**
- 5. What are the objectives of computing at CBE?**
- 6. It is expected that the success of IT at CBE will have national and sectoral significance but it is delayed for more than a year. Why the IT project is delayed in terms of implementation?**
- 7. What are your strategies to integrate (make part of it) professionals of CBE with personal computers so that they use the computers to improve productivity?**
- 8. Many people in Ethiopia complain that personal computers are used mainly for word processing in administrative routines. Do you share this view depending on your experience at CBE?**
- 9. What strategic benefits and competitive advantages do you expect from the applications of information technology at CBE?**
- 10. After some time, there may be many project requests of automation from different departments of the CBE that may be beyond your capacity to support all requests simultaneously? What is your plan to prioritize such projects? If there is no such plan, how will you manage such problems?**
- 12. As you know the human resource is extremely important to the success of IT in any organization. What are your basic strategies to build or rebuild the systems human resources at CBE?**
- 13. Do you have standard systems development methodology, programming language security systems, computer acquisition etc.?**
- 14. Currently training is going on at CBE for systems personnel. What are the training programs? What are the training packages?**
- 15. Do you use any expert systems? If so, for what purpose(s)?**
- 16. What are the steps involved in strategic planning?**
- 17. What are the major environmental variables of CBE that you want to understand in the strategic planning process?**
- 18. What are the major sources of information about the environment of CBE?**

INTERVIEW GUIDE FOR PROCESS REENGINEERING

- 1. What are the driving forces to start process reengineering at CBE?**
- 2. What are the objectives of the process reengineering?**
- 3. What are the business processes targeted for reengineering?**
- 4. How did you identify those processes as targets for process reengineering?**
- 5. What are the activities involved in each target process for reengineering?**
- 6. Which activities are value adding ones from the identified target process for the reengineering?**
- 7. What is the effect of process reengineering on the reporting of data?**
- 8. What is the result you seek in process reengineering ?**

9. What is the role of information technology for the process reengineering?
10. Is the top management of the ready and committed to sponsor the process reengineering? What resources does it require at both branch and corporate levels?
12. What barriers/obstacles do you face in the process reengineering project?
13. What is the feedback from customers on the reengineered branch?
14. Have the expected benefits been realized from the reengineered branch (Andinet)?
15. Do you have anything to say more?

INTERVIEW GUIDE FOR THE CREDIT AND RISK DEPARTMENT

1. What are the objectives of your department?
2. What are the major activities of your department?
3. Organizations and departments do have critical success factors that determine and success or failure of the organization. What are the critical success factors to the performance of your department? For CBE?
4. How do you measure the critical success factors you mentioned above?
5. Organizations and their managers do have different sources of information for decision making. What are your major sources of information for decision making? For the CBE?
6. Do you use computer generated information for decision making? If so, on what subjects do you get computer generated information? For what specific purposes do you use the information?
7. As you know some information is required about potential borrower about their characters and financial soundness. what are your sources of information about the soundness and character of a borrower?
8. What are the factors or attributes you want to know about potential borrowers?
9. What are the major sources of funds for CBE?
10. What are the types of loans you extend to borrowers as classified in terms of time and functions of loans?
11. What are the major categories of financial and nonfinancial risks of CBE? How do you measure the financial risks?
12. Do you have anything to say more ?

INTERVIEW GUIDE FOR MARKETING AND CORPORATE PLANNING

1. Marketing is a new addition to the organization structure of CBE. What are the major activities of the Marketing wing of CBE?
2. What are the objectives of the marketing part of your department?
3. Organizations and departments do have critical success factors that determine the success or failure of the organization. What are the critical success factors to the performance of your department? For CBE?
4. How do you measure the critical success factors of your department ? For CBE?
5. What are the current products of CBE?
6. How do customers differentiate the products of CBE from that of other banks in the country?
7. What new product(s) do you plan to introduce in the short run or in the long run?

8. What bases do you use to segment the markets of CBE?
9. Do you believe that you have competitors in Ethiopia at this time?
11. Do you have any plan to work together or cooperate with other banks in the country? If yes, on what areas do you want to cooperate?
12. What are the major sources of information for strategic planning and decision making in your department? For CBE?
13. Do you feel that the information you get is accurate and reliable for decision making?
13. The CBE has been operating under the strict supervision of the NBE for many years. This lack of managerial autonomy can have serious problems in the development of managerial quality of organizations. Do you think that the managerial quality of CBE has been retained or maintained for strategic planning and high quality loans and other decision making before independence? After independence?
14. There is a major IT project at CBE. What are the expected major contributions of the envisaged IT to your department?
15. It is expected that the success of IT in CBE will have national and sectoral significance in Ethiopia but it is delayed for more than a year. Why the IT project is delayed in terms of implementation?
16. Organizations commonly develop product differentiation, cost reduction, or market niche or market growth , adapting change or growth etc., as competitive or generic strategies . What are the competitive or generic strategies of CBE?
17. Do you have anything to say more?

INTERVIEW GUIDE FOR STRATEGIC PLANNING HEAD

1. What are the steps involved in strategic planning?
2. What are the major environmental variables of CBE that you want to understand in the strategic planning process?
3. What are the major sources of information about the environment of CBE?
4. CBE has been operating under the strict supervision of the NBE for many years. Do you think that the managerial quality at CBE is retained or maintained for strategic planning and high quality loans and other decision making or is your organization capable of strategic planning ?
5. Organizations commonly develop product differentiation, cost reduction, or market niche or market growth , adapting change or growth etc., as competitive or generic strategies . What are the competitive or generic strategies of the CBE?
6. Do you think that the managers of CBE at all levels understand strategic plans or strategic planning?
7. What are the major problems of your office as far as strategic planning is concerned?
8. What roles do you expect from the information systems of CBE to the strategic planning?

QUESTIONNAIRE (NOT USED)

I PERSONAL DETAILS ABOUT RESPONDENTS

- 1.1 Sex M ____ F ____
- 1.2 Qualification and field of study _____
- 1.3 Work experience at CBE at the current position in years _____
- 1.4 Current Position _____
- 1.5 The department that you are working. Put [x] mark for your department.
- ☐ Credit and Risk.
 - ☐ Finance.
 - ☐ Marketing & Corporate Planning.
 - ☐ Operations.
 - ☐ Human Resources & Property Management.
 - ☐ IT or Information Services
 - ☐ other, please specify.

II USE AND FAMILIARITY TO COMPUTERS

2. Do you use computer (please exclude the use of computer by your secretary)?
- ☐ Yes.
 - ☐ No.
3. If your answer to 2 is yes, how do you rate your computer skills?
- ☐ Experienced user.
 - ☐ Intermediate user.
 - ☐ Beginner.
4. Approximately , what percentage of CBE employees are computer literate?
- ☐ less than 10%.
 - ☐ between 10 and 20%.
 - ☐ between 20 and 50%.
 - ☐ between 50 and 80%.
 - ☐ more than 80%.

5. If you feel that there is high computer illiteracy rate at CBE, What do you think is/are the main reason(s)? If you select more than one reason, please rank 1 for the most basic reason, 2 for the next basic reason etc.,

☐ computers are unfairly distributed to office administration purpose.

☐ CBE does not make effort to user training.

☐ computers are not important at CBE.

☐ Managers at CBE do not want to learn how to use computers.

☐ others, please specify _____

6. At the current practice, personal computers at CBE are used mainly for

☐ word processing (like typewriters)

☐ database.

☐ spreadsheets

☐ word processing, database, spreadsheets, statistical purposes.

7. If you use personal computers regularly, the software packages you use are

☐ Word processing (e.g. MS word)

☐ Spreadsheets (e.g. Excel).

☐ Graphics (e.g. corelDraw]

☐ database software (e.g. dBASE IV or V)

☐ Statistical software (e.g. SAS).

☐ others, please specify, _____.

8. If you use personal computers, the operating system that you are familiar with is

☐ MS DOS

☐ Windows (3.1, 95, NT).

☐ UNIX

☐ others, please specify _____.

9. Do you have access to electronic mail (e-mail) or Word Wide Web (WWW)?

☐ Yes.

☐ No.

III INFORMATION TECHNOLOGY AT CBE

10. The major effort and investments in Information Technology at CBE are (if you choose more than one reason, indicate priorities as 1 for most important, 2 for next most important etc.,)

☐ to modernize the banking operations.

☐ to save cost of operations.

☐ to improve productivity of employees.

☐ to meet report generating requirements.

☐ to use Information Technology as offensive weapon for competitive advantage.

☐ others, please specify _____

11. In your opinion, are the right people involved in the Information Technology project of CBE?

☐ Yes.

☐ No.

12. Does top management consider information/Information Technology as important as capital, land or labor?

☐ Yes.

☐ No.

13. If your answer to question 12 is 'Yes', are most or all of the employees of CBE at all levels of the organization aware of this philosophy?

☐ Yes.

☐ No.

14. If you are aware of the investments in Information Technology at CBE, Do you consider it as
- ☐ Excessively high
 - ☐ High.
 - ☐ Sufficient and reasonable.
 - ☐ very little.
 - ☐ I do not know what is going on.
 - ☐ others, please specify _____
15. How do you rate the competence of CBE in the use and implementation of Information Technology?
- ☐ There is high competence.
 - ☐ There is average competence.
 - ☐ There is little competence.
 - ☐ No competence.

IV PRACTICE OF STRATEGIC SITUATIONAL DIAGNOSIS AT CBE.

16. Does CBE periodically gather and analyze data about market and other external factors which affect the business?
- ☐ Yes.
 - ☐ No.
17. Does the external/market analysis identify key threats to the business? Key opportunities?
- ☐ Yes.
 - ☐ No.
18. Are the business' performance and operational characteristics compared with those of competitors?
- ☐ Yes.
 - ☐ No.

19. Does CBE assess the industry as a whole in terms of new competitors and concepts, new technologies, price trends, procurement practices, labour practices, etc.,?
- ☐ Yes
- ☐ No.
20. Does CBE have knowledge of and access to sources of information about the industry, markets, and other external factors?
- ☐ Yes.
- ☐ No.
21. Does CBE analyze its own business objectively?
- ☐ Yes
- ☐ No.
22. Does the internal analysis identify key strengths and weaknesses in the organization?
- ☐ Yes.
- ☐ No.
23. Does the organization assess its human resource development programs?
- ☐ Yes.
- ☐ No.

IV CREDIT, RISK AND CLIENTS.

24. How do you evaluate the quality of credit investigation at CBE?
- ☐ Excellent.
- ☐ Good.
- ☐ Satisfactory.
- ☐ Poor.
- ☐ I do not know the practice.
25. Under the present system of CBE, the possibility of extending loans to those who do not qualify and denying those who qualify is
- ☐ Very rare.
- ☐ very reasonable and acceptable.

- ☐ High
- ☐ very high.
26. What is your opinion about the quality of service to customers at CBE?
- ☐ Excellent.
- ☐ Good
- ☐ Satisfactory
- ☐ Poor.
27. Currently different figures are stated on different media about the volume of loan losses in the banking industry of Ethiopia. What is your opinion about the volume of loan losses at CBE?
- ☐ Excessively high
- ☐ High
- ☐ Reasonable
- ☐ It is not a problem for CBE.
28. If your answer to question 27 is excessively high or high what are the basic reasons, according to your opinion? (Please prioritize the following possible reasons if you accept them).
- ☐ State intervention in the extension of loans to poor projects.
- ☐ The present inaction of the courts.
- ☐ Poor investigation about credit applicants.
- ☐ Absence of information sources about credit applicants in the country.
- ☐ Some illegal transactions in the bank.
- ☐ other(s), please specify _____

V. COMMUNICATION AT CBE.

29. Does CBE keep its employees informed about what is happening in the organization at all levels?
- ☐ Yes.
- ☐ No.

30. What is your opinion regarding delivery of the right information to the right people at the right time?

☐ Excellent.

☐ Good.

☐ Satisfactory.

☐ poor.

31. In most cases, the information that you get for decision making is

☐ Sufficient.

☐ Not sufficient.

☐ Excess information.

☐ too much but irrelevant information.

32. In your opinion, the current information system of CBE is

☐ Very good.

☐ Good.

☐ Needs little improvement.

☐ Needs much improvement.

33. What is your opinion about decision making at CBE?

☐ Highly centralized.

☐ Highly decentralized.

☐ Distributed.

☐ Any other, please specify.

34. Please mention any major improvements that you expect from the implementation of Information Technology at CBE to your office?

35. Mention any possible obstacles for the successful implementation of Information Technology at CBE?

35. Cite the major weaknesses of CBE related to information/Information Technology at CBE?

36. What measures would you suggest to use Information Technology for strategic purpose?

DECLARATION

The thesis is my original work and has not been presented for a degree in any other university.



Bantie Workie

June 18, 1998

The thesis has been submitted for examination with our approval as university advisors.

Tesfaye Biru

June ____, 1998

Habteselassie Hagos

June ____, 1998