CHAPTER I

INTRODUCTION

1.1 Background

Information, which in essence is the analysis and synthesis of data, is undoubtedly one of the most vital corporate resources. It is structured into models for planning and decision-making. Information is incorporated into measurements of performance and profitability. It is integrated into product design and safety methods. In other words, information is almost recognized and treated as an asset in a modern organization.

With the power of information, we are transforming our own psyches while shifting from a second wave to third wave info- sphere, hence an information bomb is exploding in our midst.

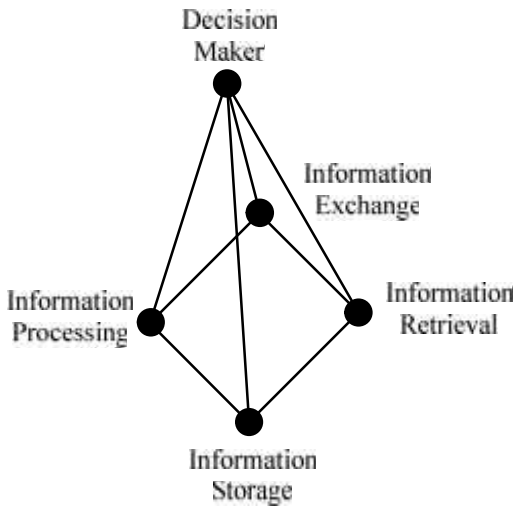


Figure 1.1: Dependence of Decision Making on Information

Modern men recognize the power of “Information”, and to put ahead oneself in the neck to neck competition, they invented a very prominent system to ease every part of performance in an organization, which we call today an “Information System”.

In today’s world Information is emerged as one of the most important resources of the organization among Men, Machine, Materials, Land and capital. Success of any organization largely depends upon the Information System that they are using and how effectively it is being used. Hence, it is proved that Information is only crown of all Managerial process.

1.2 Information System Overview

Management pundits predicted that the future will be expected to have a command over the latest Information Technology as well as an overall understanding of the organization. The further future will be based on the ability to analyze information and situation to make decisions that drive the performance towards success with implementation of information system best suited to the need of an organization.

According to the definition of International Federation for Information Processing (IFIP) and British Computing Society (BCS) in 1885, information system is a system which assembles, stores, processes, and delivers information relevant to an organization (or to society) in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients, and citizens. An information system is a human activity (social) system which may or may not involve the use of computer systems.

“The mission for information systems in organizations is to improve the performance of people in organizations through the use of information technology” (McNurlin and

Sprague, 1989 & 1999). Thus, an information system takes an organization from the position of computer orientation to Information orientation. In this regard, Information System (IS) focuses on the improvement of organizational performance via its people who make up the organization. And the resource for this improvement is Information technology.

Alter (1995) defines Information System as a system that uses information technology to capture, transmit, store, retrieve, manipulate, or display information that is used in one or more business processes. Hence, Information system in an organization, within managerial process, is used for operational control, management control, and strategic planning.

Executive decision-making today in any field is very complex. Both strategic and tactical decisions rely on information that is timely and accurate and, therefore, the use of information procuring systems has become essential in every significant management activity. The rapid development of Management Information System (MIS) and of its technology itself, its convergence and integration, birth of new concepts like information resource management, or the extension of the role of information professional within the organization are the new trend setters. Decision Support System, for example, presents an impressive picture of senior decision makers having up to date information at their fingertips in high quality graphic form and are able to borrow into detail to any level they require.

Thus, information is a vital ingredient for the operations and management of any organization. The scope of a formal information system in an organization is limited by the data that can be obtained; the cost of obtaining, processing and storing the data;

the cost of retrieval and distribution; the value of the information to the user and the capability of the humans to accept and act on the information.

CBIS is designed to both reduce the costs and increase the capabilities of organizational information processing and increase organizational effectiveness. Consequently, in the last two decades, information technology has emerged in the world affecting our personal, social and public life and has made a significant impact on quality of life.

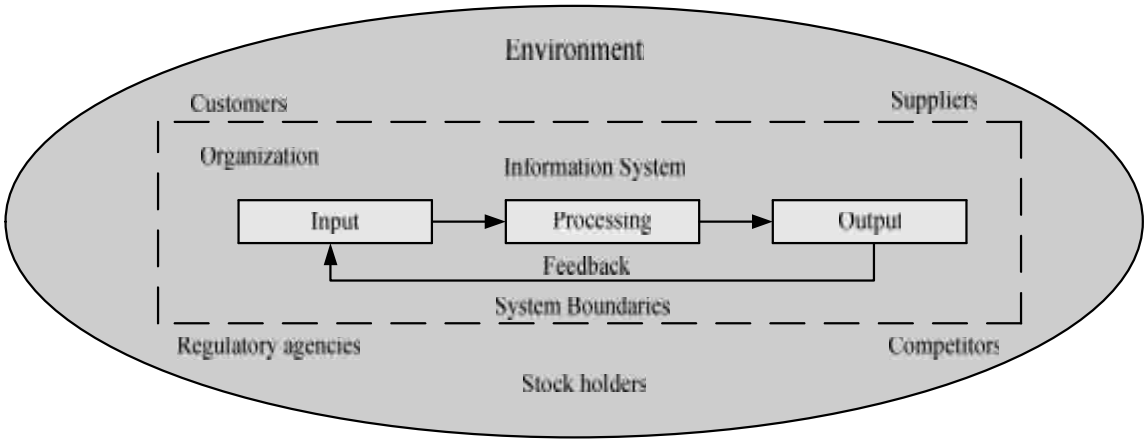


Figure 1.2: Component of Information System

Thus, in the changing environment of world, Information technology (IT) helps to optimize the use of scarce resources through intelligent information support for decision-making, and helps further in its implementation by supporting coordination effort without wasteful delays. Decision-making has become a very complex process due to competitive environment, scarce resources, time pressures and unavoidable compulsions to achieve goals. It replaces old outdated slow methods by fast ones. It

allows you to handle big and complex data and its structure with ease, which was never possible earlier. It helps you test the solution without implementing them.

The distance and access are no longer technical or operational problems, as information stores anywhere can be used without its personal possession. It has affected the work culture in organization and life style of each individual. Information, therefore, it is considered as sixth, productive resources along with Men, machines, materials, money and management. It can be developed only by designing proper information systems for the management of the organization.

1.3 Management Information System (MIS)

We are living in an age of information, where we talk about the new economy that is about a world in which investments are made on buying new concepts rather than new machines. This new economy brings a digital divide, where those with access to information technology have greater advantages over those without access to it.

Information Technology plays a major role in reengineering most of the processes of any organization. The speed, information processing capabilities, and connectivity of computers and Internet technologies can substantially increase the efficiency of organization activities, as well as communications and collaborations among the people responsible for their operation and management.

In this regard, according to Zwass (1992), A Management Information System is an organized portfolio of formal systems for obtaining, processing, and delivering information in support of the business operations and management of an organization. Experience has taught us that adopting traditional approaches is not adequate. The modern day environment is more complex. It is true that the initiatives and

transformations have provided additional opportunities but they have also added to the complexities, challenges and threats. MIS, along with modern management science, helps overcome many of these challenges and leads to success.

MIS is associated with the process of identifying, measuring, analyzing, interpreting and communicating information for searching the goals of the company. In this regard, MIS is an integral part of the management process and is important partners in the company's management team. In the broader sense MIS aspires to be an analytical tool for: Strategic planning, decision making and cost control.

While taking into consideration, the role of MIS in and organization can be compared with the role of nerve system in the body. The main role of information system is to receive, analyze and quickly and communicate the message receive from several input channels; same as nerve system of the organization where the five sense organs works as the input to the nerve system and brain as the central processing unit. Overall system of body functions on command and direction of the nerve system so is the MIS in the organizational structure.

Thus, an MIS is a business information system designed to provide past, present, and future information appropriate for planning, organizing, and controlling the operations of the organization. To sum up, management information system is an integrated user-machine system for providing information to support the operations, management, analysis, and decision-making functions in an organization.

The system utilizes:

- computer hardware and software/networking
- manual procedures

- models for analysis, planning, control, and decision-making
- a database

Hence, the actual process of MIS involves the collection, organization, distribution and storage of organization wide information for managerial analysis and control.

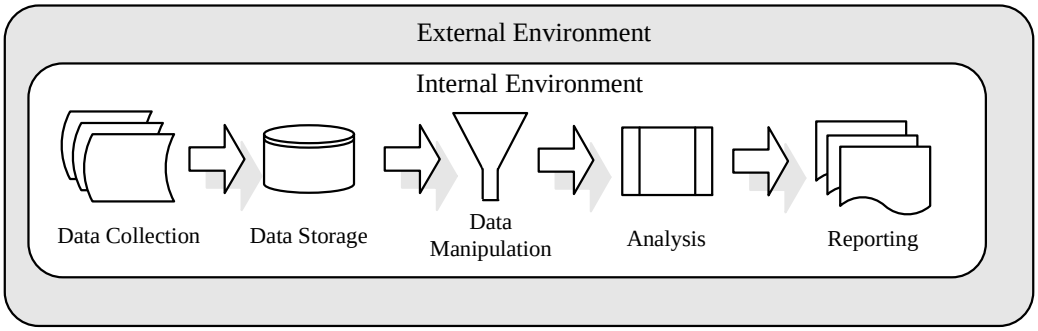


Figure 1.3: Model of MIS

MIS is a young discipline in a Nepalese context. As a result, MIS concepts and tools are still evolving as new ways, are found to provide information that assists management. MIS coupled with special knowledge and ability, assist management in its task of maximizing profits or minimizing losses. Different classes of users of MIS in an organization will use it differently. Management uses it for special reports and analysis, often employing a staff specialist to manipulate decision models and perform analysis. First line supervisors use it for operational control and detailed exception reporting and clerical users primarily provide input and data control.

We know, a hybrid product is the most handsome and fruitful one. MIS is a hybrid discipline comprise of diversified in Management and Information system. As main purpose of MIS is to assist the manager, it incorporates the theories, tools and techniques of any disciplines as per the needs. On this ground, the scope of MIS touches all the disciplines of business administration of any organization.

1.4 Definition of Commercial Bank

According to investorwords.com, “Bank is An organization, usually a corporation, chartered by a state or federal government, which does most or all of the following: receives demand deposits and time deposits, honors instruments drawn on them, and pays interest on them; discounts notes, makes loans, and invests in securities; collects checks, drafts, and notes; certifies depositor's checks; and issues drafts and cashier's checks.” This definition of bank holds a traditional way of defining a bank. But in this era commercial bank does a lot more than that. According to Investerwords.com commercial bank is an institution which accepts deposits, makes business loans, and offers related services. Commercial banks also allow for a variety of deposit accounts, such as checking, savings, and time deposit. These institutions are run to make a profit and owned by a group of individuals, yet some may be members of the Federal Reserve System. While commercial banks offer services to individuals, they are primarily concerned with receiving deposits and lending to businesses.

A broader definition of a bank is any financial institution that receives, collects, transfers, pays, exchanges, lends, invests, or safeguards money for its customers. This broader definition includes many other financial institutions that are not usually thought of as banks but which nevertheless provide one or more of these broadly defined banking services. These institutions include finance companies, investment companies, investment banks, insurance companies, pension funds, security brokers and dealers, mortgage companies, and real estate investment trusts. (Microsoft Encarta Reference Library, 2004)

1.5 Management Information System and Bank

In Western Europe and United States, it is estimated that today one-half of the Gross National Product (GNP) is attributed to the production, use and distribution of computer based information. In a bank, having knowledge how to process and analyze information using computers in often a determining for success. This objective requires an information System. (www.answer.com)

After the restoration of democracy, the Government of Nepal launched an economical liberalization policy. This has led to an increasing number of commercial banks in the country, due to such increment of commercial banks, competition also increased among them which have resulted in enhanced services to the customers getting more competitive advantage. This is only possible through proper information technology.

Management Information System is the backbone on which logical business decisions are made in all types of business organizations. Applying this same logic to a bank, we can safely say that a bank must have good Management Information System as a minimum to survive and prosper in this exceedingly competitive world.

1.6 Focus of the Study

The role of commercial banks is extremely important for the development of industries, trade, commerce, agriculture of the country. In fact no nation can develop itself without the development of the bank. As Nepal is a developing country and different report of different development countries shows that there is vital role of commercial bank in development countries.

Initially, Bank of Kathmandu Ltd. (BOK) had been established as a joint venture bank of **SIAM Commercial Bank,** Thailand with Nepalese investors in March 1995. Later on, in Sep 14, 1998 based on Management Termination Agreement, SIAM

Commercial Bank returned back its share of investment on the bank to the board of directors of Bank of Kathmandu Ltd. Now, Bank of Kathmandu Ltd. (BOK) has become a prominent name in the Nepalese banking sector.

BOK is committed to delivering quality service to customers, generating good return to shareholders, providing attractive incentives to employees and serving the community through stronger corporate social responsibility endeavor. BOK has today become a landmark in the Nepalese banking sector by being among the few commercial banks which is entirely managed by Nepalese professionals and owned by the general public.

BOK has 25 branch offices covering all region and development areas of Nepal. It has banking network from capital city Kathmandu to the one of the most remote district of Nepal-Jumla. The Branch Operations Department is responsible for supervising the 25 branches operating in Nepal. Through its extensive branch network, BOK has been contributing to Nepal's economic development by providing banking services throughout the country.

BOK aims to facilitate the nation's economy and to become more competitive globally. To achieve these, BOK has been focusing on its set of objectives right from the beginning. It has clear vision to become a significant contributor to the economic development of Nepal by distinguishing the bank as an efficient, competitive, safe and top quality financial institution.

BOK's IT infrastructure has been designed, to facilitate, internal and customer convenience. Nationwide, all the branches are connected to the central database via Wide Area Network (WAN) powered by Finacle, state-of-the-art banking application software supported by hardware like SUN Fire V880 RISC server, VSAT etc.

Internally, BOK relies on Information & Communication Technology (ICT), for a quick, reliable, efficient system. Banking operations are powered by Finacle, which is listed among the top 40 companies that have reshaped the global economy as per the Wired Magazine.

1.7 Statement of the Problem

In this technology driven era all private banks in Nepal are fully computerized and are using some sort of MIS. Most of the private and joint venture banks have also been using various kinds of high tech software system for their daily activities and they provide various technological services to its customer.

Despite of being one of the leading commercial bank and using MIS in its different level of organization, BOK is lacking proper, efficient, economy and easy to handle information system which in result has leading bank not only to the loss of resources in terms of manpower/time/money but also to improper use of the existing resources.

Although the bank is using high-tech information system, there is still lacking of research for better advancement of the system, because implementation of MIS is mere beginning rather than an end. So, need of effective, efficient and economy Management Information System and continuous development of it is the main issue in BOK and in this technology driven era it is the major problem to be addressed.

1.8 Objective of Study

Main objective of this research is to study the current status of management information system in BOK at various level of management and at different department. Bank is the main body of the economic system of any country and there

has to be a good Information System to support managerial decision making process. Therefore, this research study is about, how the current system helps the managers at different level of management in BOK.

Another objective is to analyze the weakness of the current system, if there any, and to recommend a suitable MIS to cope with the current deficiencies in Managerial Decision Making process. Right information at right place and in right time is always a need of manager to make any decision. And commercial banks have to process a huge bulk of information every day. Commercial banks are often overloaded by information so they have to be ready to manage all the overloaded information.

Thus, this research will focused on the management information system which should be installed to support the need of decision maker in the bank and what kind of training program have to be done to utilize the full capacity of the Management Information System.

The main objectives of this research study are follows:

- To examine the current information management system in the bank.
- To find out any drawbacks and weakness of the current information system.
- To find out any hindrance in implementing process of new system.
- To recommend number of task that has to be done to make information system effective.

1.9 Significance of the Study

Information plays a key role in success of any business organization. Therefore, there should be a good MIS to manage the information properly. Traditional paper based MIS should be converted to a computer based information system to achieve high rate of success and to make decision on properly and timely manner.

Information plays a key role in success of business organization. Therefore, there should be a good MIS to manage the information properly. Traditional paper based MIS should be converted to a computer based information system to achieve high rate of success and to make decision on properly and timely manner.

BOK is one of the leading "A" Class commercial banks of Nepal classified by Nepal Rastra Bank. It has already introduced a computer based information system in its all branches from Amlekhgunj to Jumla, but implementation of MIS is not an end itself rather a beginning.

An information system is a must for the Commercial banks, which have to process a huge bulk of information and have to generate different kinds of reports periodically which help the managers to take right decision regarding loan processing, investment, strategy for collection of deposits etc. Thus, the significance of the study lies on a continuous study, which must be carried to find shortcomings Information System to further strengthen in the days ahead.

1.10 Limitation of the Study

BOK has 25 branches in all over Nepal. But this study will consider only few branches among them. Therefore, this research study will show the status of Management Information System and will try to recommend a suitable Management

Information System for the particular branches only and that recommendation may not be applied for other branches.

Another limitation of this research study is that it will be based on primary data which will be collected from observation, questionnaire and interview method and it will assumed to be accurate and reliable.

Furthermore, design and development of a new information system and implement that in the bank is huge task and that may take very long time and resources as well so that is not the scope of this study therefore, this research study only analyze the current information system to present the current status of the bank and tries to recommend number of task that has to be done to improve the information system.

1.11 Organization of the Study

1. Introduction

The first chapter provides the summery of overall study. This chapter has introduction to the overall subject matter, overview of the organization, statement of the problem, significance of the study, focus of the study, limitation of study and organization of study.

2. Review of Literature

Review of literature is an important part of this research. This chapter includes the theoretical background of MIS and reviews on how MIS is relevant to the decision making, aviation safety and airport management. Review of various literatures in application of information technology in aviation safety and airport management and practices of some of the other countries in this regard as well.

Unpublished Master degree thesis and published article in newspaper or on World Wide Web related with subject of this research is also reviewed in this chapter.

3. Research Methodology

This chapter constitutes the methodology adopted to conduct the study, data analytical techniques and processes. This chapter contains Research design, Sources of data, Population and Sample, Data Collection Method, data analysis technique, and tools used for data analysis.

4: System Analysis, Design and Presentation

By the nature of the research there are few primary and secondary data that is to be analyzed and presented. This chapter contains presentation and analysis of primary data with general analysis of various indicators. In this chapter, data flow diagrams, entity relationship diagram, limitation of existing system are presented.

5: Summary, Conclusion and Recommendation

This chapter contains summary, conclusions and recommendations, recommendations for further research.

CHAPTER II

REVIEW OF LITERATURE

"Literature review is basically a "stock taking" of available literature in one's field of research. (Wolff & Pant, 1999:30)

2.1 Conceptual Framework

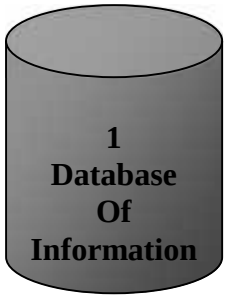
The concept of the MIS has evolved over a period of time comprising many different facts of the organizational functional functions. The initial concept of MIS was to process data from the organization interval. The system was largely capable of handling the data from collection to processing. It was more impersonal requiring each individual to pick and choose the processed data and use it for his requirements. This concept was further modified when a distinction was made between data and information. The information is a product of analysis of data. This concept is similar to raw needed in information and not a mass of data. However, the data can be analyzed in a number of ways producing different shades and specification of the information as a product.

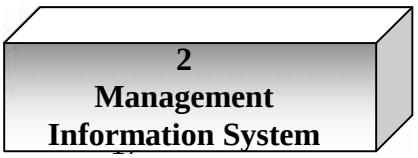
It was therefore demanded that the system concept should be an individual-oriented as each individual may have a different orientation towards the information. This concept was further modified that the system should present information in such a form and format that it creates an impact on its users provoking a decision an action or an investigation. It was later realized that even though such an impact was a welcome modification some sort of selective approach was necessary in the analysis and reporting. Hence the concept of exception was imbibed in MIS. The norm for an

exception was necessary to evolve in the organization. The concept remained valid till and to the extent the norm for an exception remained true and effective. Since the environment turns competitive and is ever changing fixation of the norms for an exception becomes a futile exercise at least for the people in the higher echelons of the organization. The concept was then evolved that the system should be capable of handling a need based exception reporting. This need may be either of an individual or group of people. This called for keeping all data together in such a form that it can be accessed by anybody and can be processed to suit his needs. The concept is that the data is one but it can be viewed by different individuals in different ways.

Over a period of time when these conceptual development were taking place the concept of end user computing using multiple databases emerged. These concepts brought a fundamental change in MIS. The change was decentralization of the system and user of information becoming independent of computer professionals when this become a reality the concept of MIS changed to a decision making system. The job in a computer department is to manage the information resource and leave the task of information processing to the user. (Jawedekar, 1998:3-4)

A management information system (MIS) is a system that provides periodic, predetermined, ad-hoc reporting capabilities. Most often, MIS reports summarize or aggregate information to support decision-making tasks. So, MIS are systems that have information-processing responsibilities that include creating information and conveying information to whoever needs it.





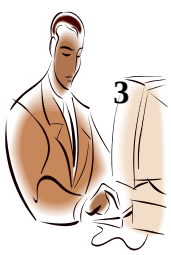


Figure 2.1: Management Information Systems at work

1. Using information in a database.

2. Providing periodic, predetermined, ad-hoc reporting capabilities.

3. Alerting people to get potential problems or opportunities.

MIS are often called management alerting systems because they "alert" people (usually management) to the existence (or potential existence) of problems or opportunities. MIS are designed primarily to summarize what has occurred and point people toward the existence problems or opportunities. Reports generated by MIS rarely tell someone why a problem or opportunity exists or offer solutions.

MIS provide reports in many different forms. MIS reports can be periodic, summarized, exception, comparative and ad-hoc. Periodic reports are reports that are produced at a predetermined time interval: daily, weekly, monthly, yearly, half yearly and so on. Summarized reports are simply those reports that aggregate information in some way. For example, sales by sales people, defective returns by reports. Exception reports show only a subset of available information based on some section criteria. Likewise, comparative reports show relative information from the system and ad-hoc reports are used to provide spontaneous information to the organization.

Management Information System has been understood and described in a number of ways. But prior to know about MIS in detail one should know about organization, management, information and system.

2.1.1 Organization

Organizations are established to achieve goals. They are human associations with structure and technology. They are open systems and operate in a dynamic environment. (Agrawal, 2002:1)

It is a collection of people intentionally organized to accomplish an overall, common goal or set of goals. By the nature its much more goals oriented and is a consciously coordinated social unit that functions on a relatively continuous basis to achieve a common goal. A number of different theories and perspectives exist, some of which are compatible, and others that are competing.

- **Organization – process related:** an entity is being (re-)organized (organization as task or action).
- **Organization – functional:** organization as a function of how entities like businesses or state authorities are used (organization as a permanent structure).
- **Organization – institutional:** an entity is an organization (organization as an actual purposeful structure within a social context).

An organization is a means to an end in order to achieve its goals. In this sense organizations can be distinguished into two fundamentally different sets of objectives:

- Organizations whose goal is to generate specific services and or to produce goods(factories, service enterprises, etc) or to bring about specific effects in its surrounding world (e.g. authorities, police, political parties, interest groups, trade unions, etc.).

- Organizations whose goal is to change individuals (e. g. schools, universities, hospitals, prisons). This type of organization is also known as a non- profit making organization.

With regard to the inner structure of organizations two terms have to be distinguished:

- **Structural organization:** the hierarchical structure of the company (who is **performing** which task and who has which decision-making power?)

- **Process organization:** the process and routines of the manufacturing phases that occur within the company (in which order is something done and how?)

The IT revolution at the end of the 1990s also had an effect on organizational theory. Through the partial removal of barriers such as distance and information costs that defined the structure of organization virtual organizations have become reality. For example it became more difficult to say who belongs to an organization and who not. New business models came into existence that has been at the centre of organizational research. (www.wikipedia.org)

2.1.2 Management

"Management" (from Old French ménagement "the directing", from Latin manu agere "to lead by the hand") characterizes the process of leading and directing all or part of an organization, often a business, through the deployment and manipulation of

resources (human, financial, material, intellectual or intangible). Early twentieth-century management writer Mary Parker Follett defined management as "the art of getting things done through people." One can also think of management functionally, as the action of measuring a quantity on a regular basis and of adjusting some initial plan, and as the actions taken to reach one's intended goal. This applies even in situations where planning does not take place. From this perspective, there are five management functions: planning, organizing, leading, co-coordinating and controlling.

For others though, this definition, while useful, is far too narrow. The phrase "management is what managers do" is also prevalent, conveying the difficulty with which management is defined, the shifting nature of definitions, and the connection of managerial practices with the existence of a managerial cadre or class.

Management is known by some as "business administration", although this then excludes management in places outside business, e.g. charities and the public sector. University departments that teach management are nonetheless usually called "business schools". The term "management" may also be used as a collective word, describe the managers of an organization, for example of a corporation. From the most general systemic perspective [1], management is a high level mental and communication activity (by tasks emission), of the indirect goal-oriented control of the domain of interest using autonomous execution and information entities/agents/units. The main management generic missions are: confrontation of objectives with the possibilities, planning, and leading of autonomous human units to the goal achieving. In every such situation, a continuous decision-making is required. (www.wikipedia.org)

The term management has numerous definitions. In simple term, Management is defined as what managers do. Management is the continuous process of getting organizational activities systematically done at right time and right means through gathering and optimum utilizing resources to achieve predetermined organizational objectives. A dictionary defines management as the act art or manner of handling controlling or direction and enterprise.

The management is the process that visualizes the future, sets goals to be accomplished, has the ability to effectively coordinate the existing financial, human and technical resources, decentralize operation, builds goal team and has a social responsibility towards the nation and its people. (Sarukesi & Janakiraman, 1999:53)

We define management for the purpose of management information system as the process of planning, organizing, staffing, coordinating and controlling the efforts of the members of the organization to achieve common stated goals of the organization. In the process of management, a manager uses human skills, material resources and scientific methods to perform all activites leading to the achievement of goals. (Jawadekar, 2002:14)

According to Lucey (2002) "Management is a practice not a science. It is not a knowledge but performance".

Management is usually defined as planning, organizing, directing and controlling the business operation. This definition, which evolved from the work of Henri Fayol in the early 1990s, defines what manager does, but it is probably more appropriate to define what management is rather than what management does. Management is the

process of allocating organizations' inputs, including human and economic resources, by planning, organizing, directing and controlling for the purpose of producing goods or services desired by customers so that organizational objectives are accomplished. If management has knowledge of the planning, organizing, directing and controlling of the business, its decisions can be made on the basis of facts, and decisions are more accurate and timely as a result. (Lloyd W, 2006)

Organizations with a good management team lead to success. Thus, Management is a term used to describe the techniques and expertise of efficient organization, planning, direction, and control of the operations of a business firm. For management there should be managers and managers simply supervise, monitor, and coordinate the different areas of an organization. For instance, financial managers focus on generating and reinvesting finance capital. Human resource managers help recruit people with desirable skills and place them where they are most needed. Marketing managers help sell final goods and services to customers. (www.answer.com)

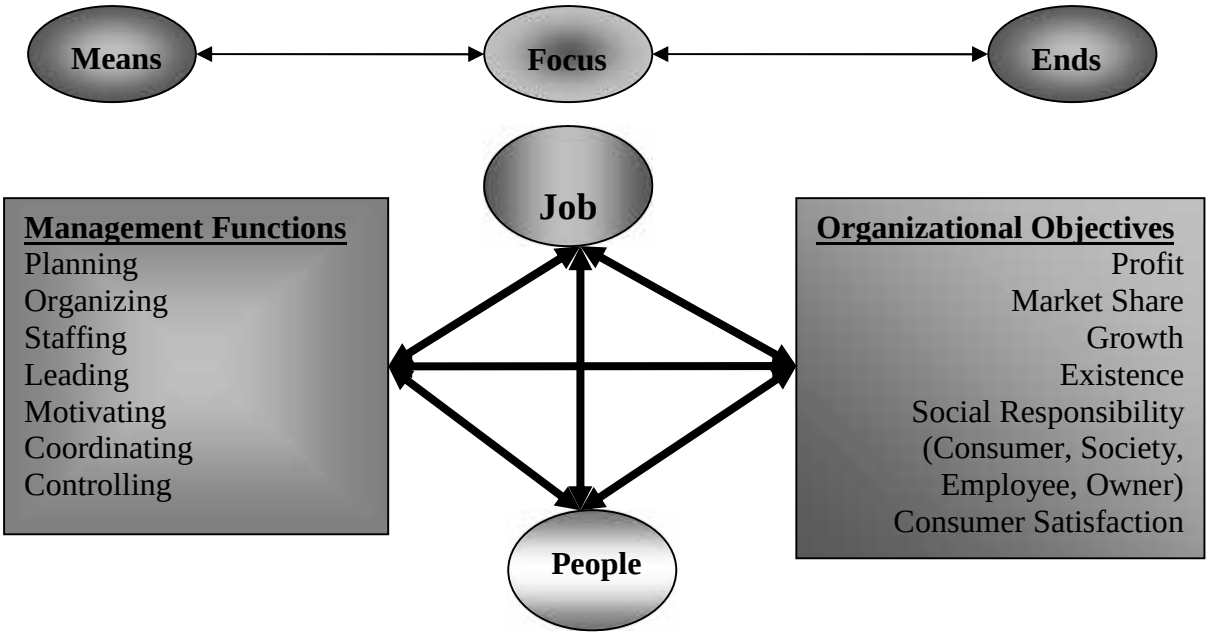


Figure 2.2: Model of Management

2.1.2.1 Characteristics of Management

Some Important features of management can be enumerated as follows:

I. It is always purposeful. It aims to achieve organizational and functional goal. It tries to increase effectiveness, efficiency and economy (3E) of organizational activities.

II. It is continuous and dynamic process.

III. It is means for getting things done.

IV. Management is concerned with measurable activities. Management is done by dividing complex and big activity into small measurable activities. "If you can not count it, you can not measure it, you can not manage it".

V. Management is universality. Every organization small or big, private or public, manufacturing or trading practices some sorts of management to achieve organizational goal.

VI. It is integrative and coordinating process of available resources, activities and stakeholders. It is related to harmonizing group efforts.

VII. Management possesses features of both art and science.

VIII. It is intangible but it effects can be felt.

IX. It has developed as a procession.

X. It is multidisciplinary discipline. It takes heavily for trading, economics, statistics, psychology, politics etc.

XI. The management process involves a continuous resolution of conflicts such as human conflicts, conflicts of goals, conflict between alternative resources, conflict of time, conflict of approaches and conflict of choice.

2.1.3 Information

Information is what is used in act of informing or the state of being informed. Information includes knowledge acquired by some means. Information can be defined as the date which is organized and presented at a time and place so that decision maker may take necessary action. In other words information is the result/product of processed data.

The term “information” has been widely and increasingly used, but not always with a clear idea about its meaning. The word “information” is one of the most used, and much abused, words. Different scientific disciplines and engineering fields provide diverse meanings to the word, which is becoming the umbrella of divergent, and some-times dissimilar and incoherent homonyms. When concepts are not clear, the use of homonyms might be intellectually and pragmatically dangerous.

The concept of information in an organizational sense is more complex and difficult than the frequent use of this common word would suggest. Every society, no doubt, is an information society and every organization is an information organization. Therefore, information is a basic resource like materials, money and personnel. Information can be considered either as an abstract concept (ideas) or as a commodity, usually in the form of letters and reports.

Essentially, therefore, information has become a critical resource, just like energy, both of which are vital to the wellbeing of individuals and organizations in the modern world. Like energy and politics, technology is changing the ways in which information is captured, processed, stored, disseminated and used. Information, therefore, like any other resource in an organization, should be properly managed to ensure its cost-effective use. It is an ingredient that is vital to good management and if properly managed, should rank in importance with the organization’s personnel, material and financial resources. In an organizational context, it is increasingly being recognized as a resource independent of the technology used in manipulating it. (Adeoti-Adekeye, 1997:318-319)

The implication of this realization is the further recognition that information is the cohesive element that holds an organization together. Information is an unusual commodity, quite unlike most physical goods or consumer durables. Since it is intangible, it is often hard to enforce custody. For this simple reason, it is often crucial to highlight the significant differences between this resource and others when developing a management framework. Its content can be distinguished either by source (internal or external) or by form (numeric or non-numeric). Non-numeric can either be structured or unstructured.

Internal information is that generated within an organization and generally is of interest and value only to decision makers within that organization. External information can be regarded as that created by others, that is, outside the four walls of the organization, generally by publishers in the form of books or journals, or by Governments, external contacts and the like. Information professionals have a surprising range of ideas on what information is. They have not been able to produce a widely acceptable definition. (Adeoti-Adekeye, 1997:319)

The term “information” has been widely and increasingly used, but not always with a clear idea about its meaning. The word “information” is one of the most used, and much abused, words. Different scientific disciplines and engineering fields provide diverse meanings to the word, which is becoming the umbrella of divergent, and some-times dissimilar and incoherent homonyms. When concepts are not clear, the use of homonyms might be intellectually and pragmatically dangerous.

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Jawadekar(2003) defined "Information is the processed data, which improves representation of an entity, updates the level of processed data, which improves representation of an entity, updates the level of knowledge, reduces uncertainty, aids in decision making and has a surprise value".

Similarly to this, Davis & Olson (1974) defined information as "the data that has been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective decisions".

Zorkoczy (1981) defines information “as the meaning that a human expresses by, or extracts from, representations of facts and ideas, by means of the known conventions of the representations used”. This definition includes the word “meaning” which is just as intangible and elusive as “information”.

Stonecash (1981) also defines information by stating that “information is simply symbols (data, text, images, voices, etc.) that convey meaning through their relative ordering, timing, shape, context, etc. information is the raw material for making decisions for creating knowledge and fuelling the modern organization”. As a concept, information has always connoted different meanings to various information professionals, depending on what side of the information profession they belong.

Elliss (1986) rightly observes that “the data processing manager might conceive it in terms of data, the records manager in terms of records and reports, the librarian or information scientist in terms of documents or other materials”.

Murdick et al. (2000) defines information as "a property, characteristic or description of something physical, logical, virtual or conceptual, including other information".

Similarly, Sadagopan (2000) says "information provides insights using data culled from the processes that characterize the situation".

Information has a precise meaning and it is different from data. The information has a value in decision-making while data does not have. Further, information brings clarity and creates an intelligent human response in the mind and data is in general will be less refined and may not necessarily be in the form useful for human understanding. Basically, information is a product generated after processing the data. The data, here, act like raw materials, which need to be processed to be converted into the information. The conversion process of data into information is shown in Fig 2.3.

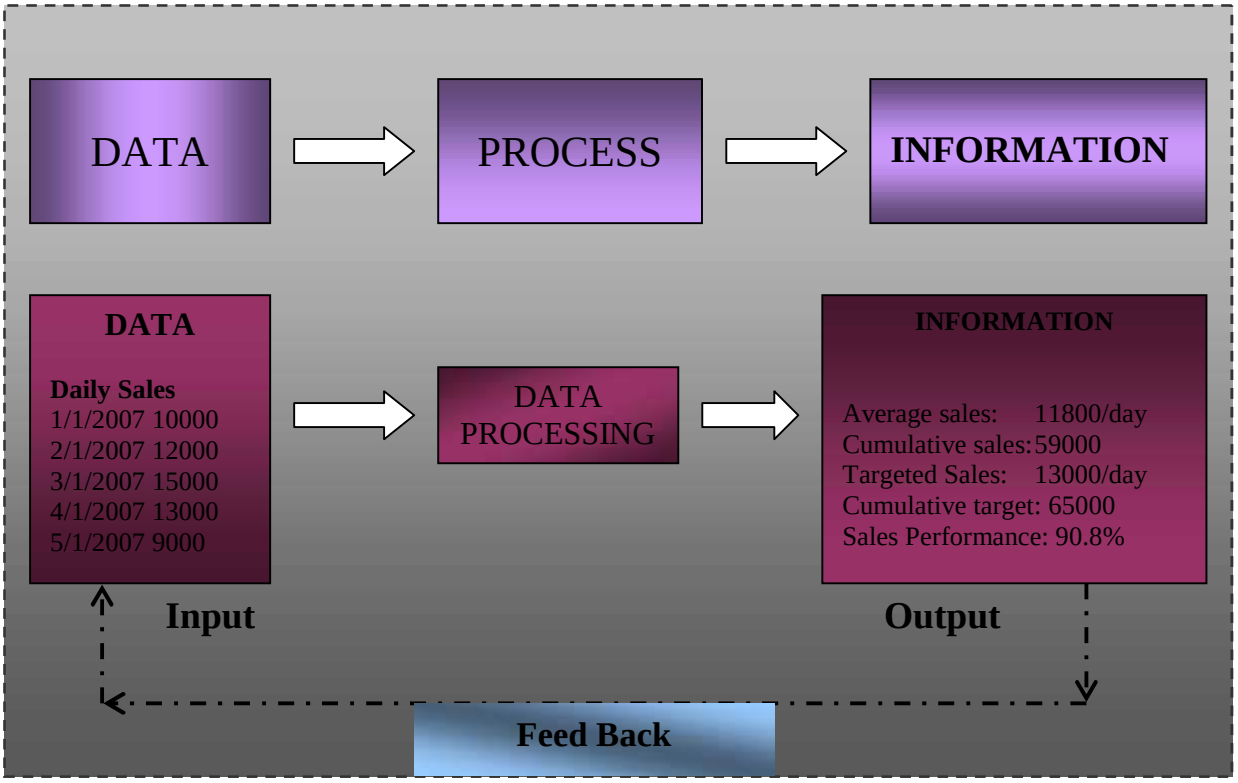


Figure 2.3: Conversion Process of Data into Information

2.1.3.1 Data vs. Information

The word data is the plural of datum, through data commonly represents both singular and plural forms. Data are raw facts to observations, typically about physical phenomenon or business transactions. For instance, take of an aircraft would generate a lot of data describing that event. More specifically, data are objective measurements of the attributes (the characteristics) of entities (such as people, place, things and events). Data is more than the raw material of information systems. The concept of data resources has been broadened by mangers and information systems professionals. They realize that data constitutes a valuable organizational resource. Thus, data as data resources must be managed effectively to benefit all end users in an organization.

The data resources of information systems are typically organized into:

- Data bases that hold processed and organized data
- Knowledge bases that hold knowledge in a variety of forms such as facts, rules and case examples about successful business practices.

People often use the terms data and information interchangeably. However, it is better to view data as raw material resources that are processed into finished information products. Then we can define Information as data that have been converted into a meaningful and useful context for specific end users. Thus, data are usually subjected to value-added process (we call data processing or information processing) where, (1) its form aggregated, manipulated and organized; (2) its content is analyzed and evaluated; and (3) it is placed in a proper context for a human user. (O'Brien, 2003:8)

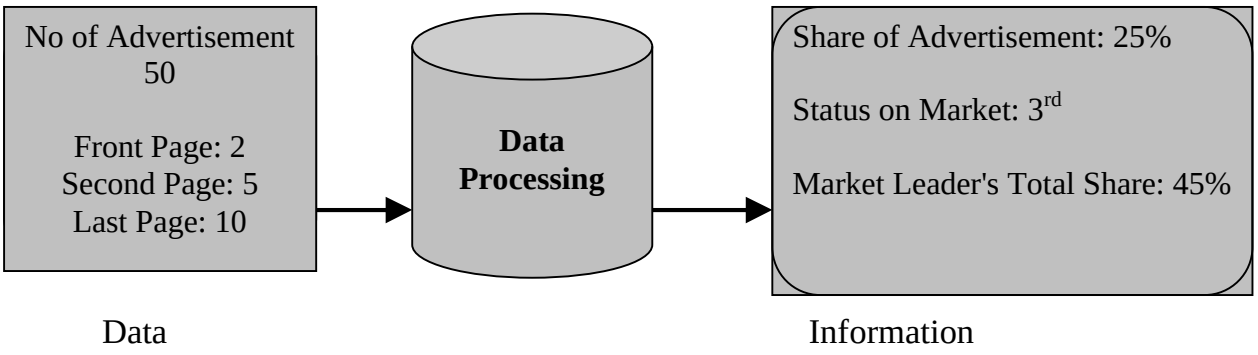


Figure 2.4: Data versus Information

Information, therefore, like any other resource in an organization, should be properly managed, to ensure its cost-effective use. It is an ingredient that is vital to good management and if properly managed, should rank in importance with the organization's personnel, material and financial resources. In an organizational context, it is increasingly being recognized as a resource independent of the technology used in manipulating it. (Adeoti-Adekeye, 1997:318-319)

2.1.3.2 Types of Information

In general, information can be classified into three main categories based on the purpose for which it is utilized. These are as follows:

- **Strategic Information:** Strategic information is required to the executives or managers at their strategic level of management for the formulation of organizational strategies. This relates to the long term planning policies of the organization as a whole. Strategic information is used primarily by top management and its staff to cover a long time span, generally one to five years. This type of information is employed for planning purposes and for analysis of problem areas to discover the underlying reasons for specific problems or conditions. Primarily, it involves large amounts of information derived from or relating to areas of knowledge outside the organization. In many cases, strategic information finds answers to the question why rather than what or where, since it concerns itself with determining objectives, initiating priorities, developing strategies, initiating programs and establishing policies that will govern the acquisition, use and disposition of the resources needed to achieve objectives.

- **Tactical Information:** Tactical Information that covers relatively short periods (not grater than 12 months) is used by middle management to implement the highest-level strategic plans at the functional levels. Tactical information is used by a large number of people. This type of information is the resource needed by middle management for tactical decision making to allocate resources properly for the attainment of organization objectives.

- **Operational Information:** Operational information, being at the lowest level, is concerned with structured and repetitive activities that are measurable in terms of specific results. It allows line managers, such as plant foremen and department heads, to measure performance against predetermined objectives, including standards and budgeted figures. Similarly operational information allows lower management to comment on how operating standards and policies can be improved to assist day to day operations. The feedback of essential information from the low level keeps higher levels of management aware of unfavorable as well as favorable results. (Thierauf, 1982:9-12)

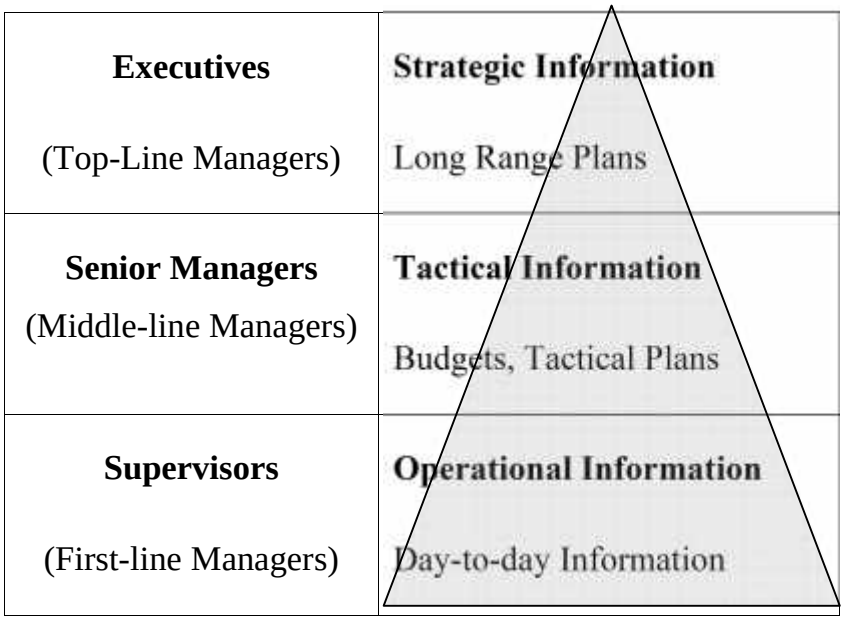


Figure 2.5 Types of Information

2.1.3.3 Characteristics of Information

Timely availability of relevant information is vital for effective performance of management functions. Information is relevant if it leads to improved decision making. it might also be relevant if it reaffirms a previous decision. If it does not have anything to do with your problem, it is irrelevant. For example, information about the

weather conditions is Paris in January is relevant if you are considering a visit to Paris in January otherwise, the information is not relevant.

Timeless refers to the currency of the information presented to the users. Currency of data or information is the time gap between the occurrences of an event in the field until its presentation to the user (decision maker). When this amount of time is very short, we describe the information system as a real-time system.

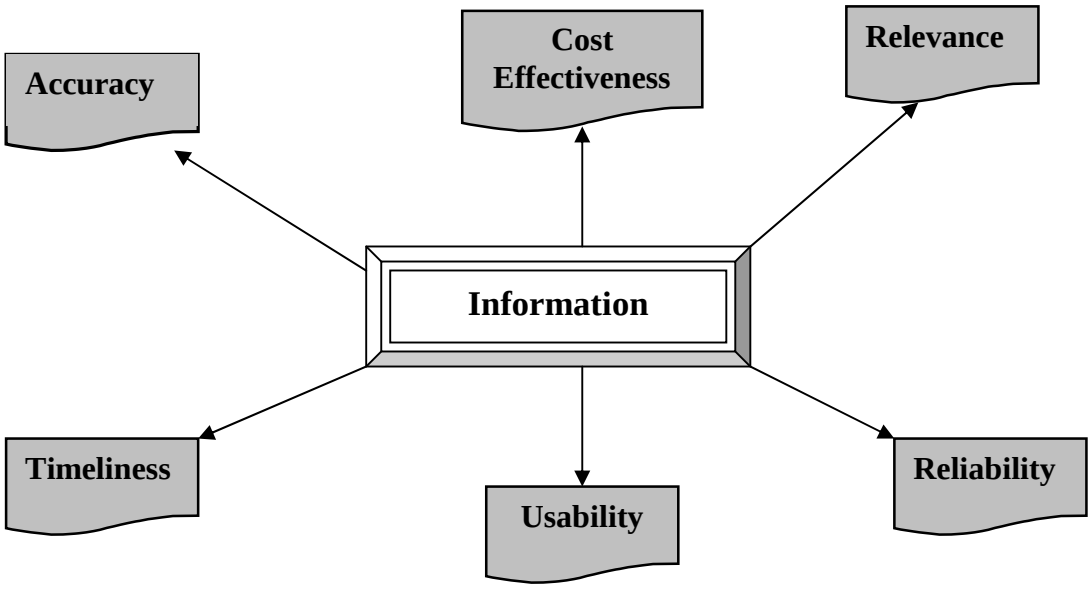


Figure 2.6: Features of Information

Accuracy is measured by comparing the data to actual events. The importance of accurate data varies with the type of decisions that need to be made. Payroll information must be exact approximations simply will not suffice. However, a general estimate of how much staff time was devoted to particular activity may be comparatively less accurate. So, accuracy, timeliness, relevance, cost-effectiveness, reliability, usability are the characteristics of good information.

According to Jawadekar (2002), Information has certain characteristics some to them can be enlisted as follows:

- Information improves representation of an entity.
- Information updates the level of knowledge.
- Information has surprise value.
- Information reduces uncertainty.
- Information aids in decision making.

2.1.4 System

The study of systems is not new. The Egyptian architects who built the pyramids relied on a system of measurements for construction of the pyramids. Phoenician astronomers studied the system of the stars and predicted future star positions. The development of a set of standards and procedures, or even a theory of the universe, is as old as history itself. People have always sought to find relationships for what is seen or heard or thought about.

A system is a scientific method of inquiry, that is, observation, the formulation of an idea, the testing of that idea, and the application of the results. The scientific method of problem solving is systems analysis in its broadest sense. Data are facts and figures. However, data have no value until they are complied into a system and can provide information for decision making. (Lloyd W, 2006)

A system can be simply defined as a group of interrelated or interacting elements forming a unified whole. Many examples of system can be found in the physical and biological sciences, in modern technology, and in human society. Thus, we can talk of the physical system of the sun and its planets, the biological system of the human

body, technological system of an oil refinery, and the socioeconomic system of a business organization. However, the following generic system concept provides a more appropriate framework for describing information systems. A system is group of interrelated components working together toward a common goal by accepting inputs and producing outputs in an organized transformation process. Such as a system (sometimes called a dynamic system) have three a basic interacting component or functions:

- Input: Involves capturing and assembling elements that enter the system to be processed. For example, raw materials, energy, data and human effort must be secured and organized for processing.

- Processing: Involves transformation process that converts input into output. For instance, a manufacturing process, the human breathing process, or mathematical calculations.

- Output: Involves transferring elements that have been produced by a transformation process to their ultimate destination. For instance, finished products, human services, and management information must be transferred to their human users.

The system concept becomes even more useful by including two additional components: feedback and control. A system with feedback and control components is sometimes called a cybernetic system, that is, a self-monitoring, self-regulating system.

- Feedback: Is data about the performance of a system. For example, data about sales performance is feedback to sales manger.

- Control: Involves monitoring and evaluating feedback to determine whether a system is moving toward the achievement of its goal. The control function then makes necessary adjustments to a system input and processing components to ensure that it produces proper output. For example, as sales manger exercises control when he or she reassigns sales persons to new sales territories after evaluating feedback about their sales performance. (www.webopedia.com)

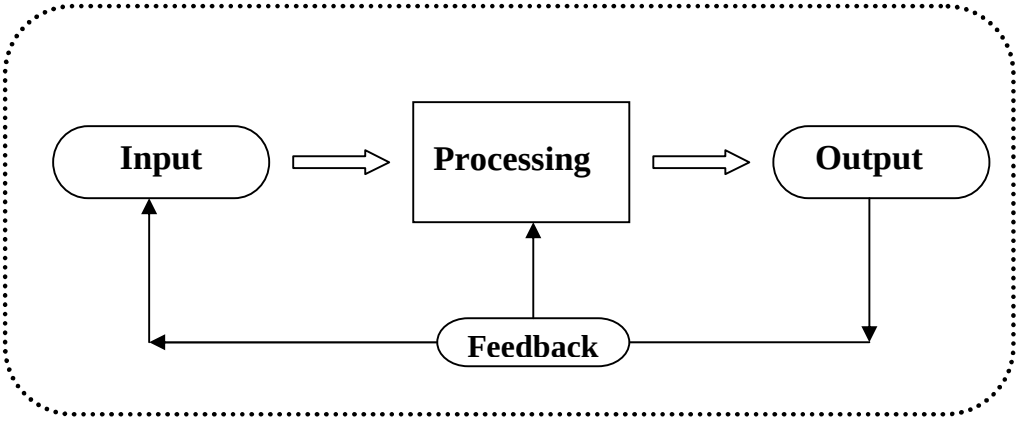


Figure 2.7: A System Concept

2.1.4.1 System Approach to Management

Manager has to use variety of tools, techniques and skills while executing the management process of planning, organizing, staffing, coordinating and controlling. Manager could handle these processes effectively if they treat the organization as a system.

System approaches to organization is the wholestic approach which provide total figure of organization. It includes and shows the relationship between factors that affects organization's operation and goal achievement directly and indirectly. It takes management as transformation process of organization.

An organization system is a unified whole composed of interrelated and interacting subsystem or parts (e.g. marketing, operating, human resource, finance) to achieve organization objectives. Organization is a dynamic social system consisting of Input, processing, output and feed back. Since organization is open system, components of internal and external environment of organization continuously affects its performance directly and indirectly.

- **Features of system approach**
  - It comprehensively includes all interrelated and interacting parts.
  - As an open system, it accepts continuous interaction with environment.
  - It defines and describes boundary of organization.
  - It shows how organization tries to maintain in a equilibrium by taking corrective actions.
- **Advantages of system approaches to management**
  - **Synergy effect:** System approach enables managers to see the critical variable, constraints and their interactions. Managers look at the total picture and carefully handle the managerial process by giving needed importance to all the elements. Functional myopia is replaced by system approach. Sub optimization is avoided through synergy effects.
  - **Organizational effectiveness:** System approach forces the manager to look at the situation and its consequences arising out of interaction with the related elements. So taking corrective actions is possible after analyzing to ensure objectives are achieved effectively.

- **Environmental adaptation:** System approach facilitates environmental adaptation. Changing forces in the environment are carefully responded to in designing the organizational activities.

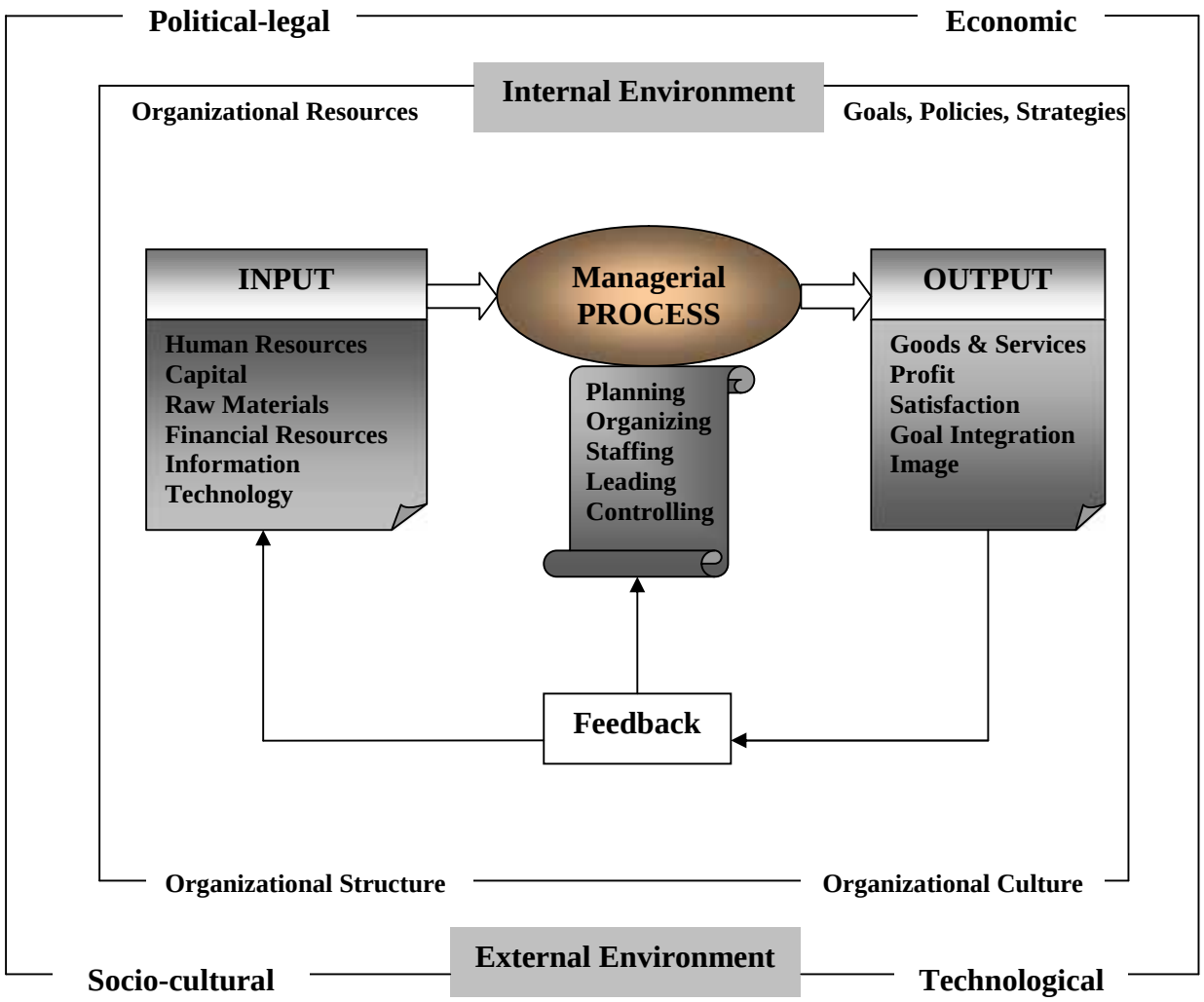


Figure 2.8: Organization as a System

2.1.5 Information System

The rapid evolution of computer technology is expanding man's desire to obtain computer assistance in solving more and more complex problems: problems which

were considered solely in the domain of man's intuitive and judgmental processes, particularly in organizations, a few years ago.

Information systems are becoming of ever greater interest in progressive and dynamic organizations. The need to obtain access conveniently, quickly and economically makes it imperative to devise procedures for the creation, management and utilization of databases in organizations. Management information and information systems, in particular those related to effective decision-making processes in an organization, i.e. MIS, are regarded as valuable organizational resources. Simply put, an information system is a system for accepting data/information as a raw material and through one or more transmutation processes, generating information as a product.

Information system is generally expected to provide not only a confrontation between the user and information, but also, the interaction required for relevant and timely decision making. Its main purpose is to satisfy users' information needs. Approaching information systems in an organizational content shows that it is a sub-system within an organizational system which is a "living and open" system. Academics interested in information works and information practitioners alike have defined information systems in various ways but with basic ideas of people, information technology and procedures which enable the facilitation of the generation, use and transfer of information. Although information systems are considered to belong to an applied discipline, there is need for an understanding of their underlying basic concepts by information practitioners. (Adeoti-Adekeye, 1997:321)

The definition of information systems by Duff and Assad (1980) is considered to be adequate: "A collection of people, procedures, a base of data and (sometimes) hardware and software that collects, processes, stores and communicates data for

transaction processing at operational level and information to support Management decision making".

Certain deductions can be made from the above definition that:

- The definition covers the what, how and why of information systems;
- An information system can be manual or computer-based;
- That information systems have existed in organizations and always will;
- That an information system is supposed to support both the basic operations of an organization and its management;
- A distinction seems to be made between data for transaction processing purposes and information for decision-making purposes; and
- The definition has provided what can be considered as basic concepts underlying information systems, namely: people, management, information, systems and organizations.

The attributes indicated above can be considered as major attributes or essential elements for developing an information system concept in an organizational context. In order to understand the information system concept further, Salton (1975) highlighted the most important computer-based information systems as follows:

- Information retrieval system (IRS);
- Question-answering system;
- Database system (DBS);

- Management information system (MIS);
- Decision support system (DSS).

Similarly, according to O'Brien (2000): "An information system is an organized combination of people, hardware, software, communication networks and data resources that collects, transforms and disseminates information in an organization".

An information system collects, processes, stores, analyzes and disseminates information for a specific purpose. Information systems are often at the heart of most organizations. For example, banks and airlines cannot function without their information systems. With the advent of electronics business (e-business), if there is no information system, then there is no business. Information systems accept inputs and process data to provide information to decision maker and help them communicate their results. Now a World Wide Web presence and activities are expected by consumers and decision makers. So, information systems have become critical for many organizations that in the past did not rely on them. (Turban Efraim & Aronson Jay E., 2004:38)

2.1.6 Computer Based Information System

Computer based information system is the developed from primary management information system. Jawadekar (2003) says that MIS, which is popularly known as the information system, the information and decision system, the computer based information system, takes part in handling of a voluminous data, fulfilling changing needs of the information, complex processing of data and multidimensional analysis with wide application of computers today.

Information is one of the crucial resources for the manager to make a sound decision. It can be manages just as any other resource, importance of this resources is increased because of two reason one is complex in business and another is development technology.

The output of computer is information it can be used by managers, non-managers and persons and organization with in the firm's environment. All level of managers is beneficial form the computer based information system. For access of information managers should be familiar with the system.

Organization itself is a big system which includes all the subsystem in the organization. The organization is physical system, but managed through the use of conceptual system. The conceptual system consists of an information processor that transforms data into information and represents the physical resources.

The first major computer application was the processing of accounting data. The application was followed by four others: management information system, decision support system, the virtual office, and knowledge-based system. All five of these applications compose the computer-based information system. (Basandra, 1999:65)

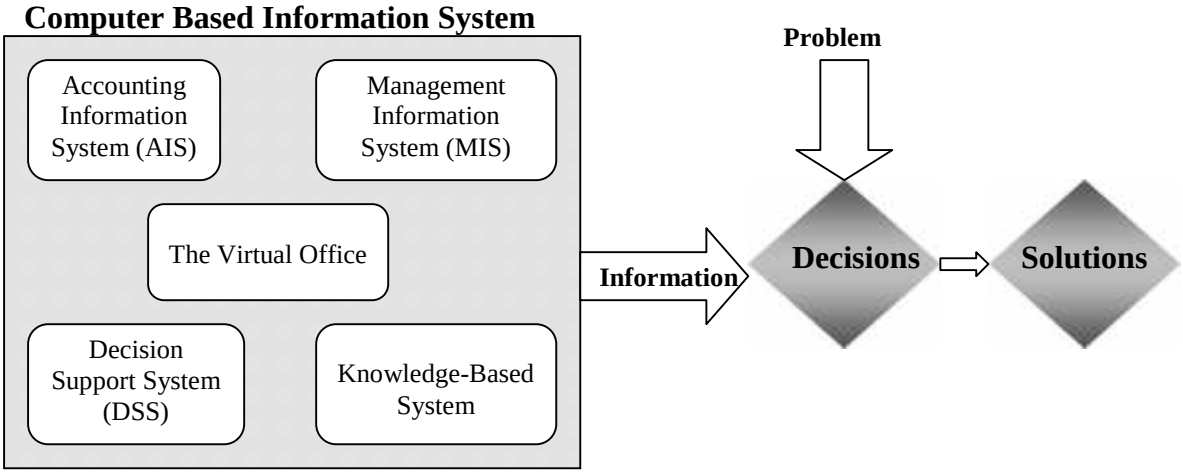


Figure 2.9: Model of CBIS Subsystems

2.1.6.1 Evolution of Computer Based Information System

Initially the computers are used in the business for the purpose of data collection. Then an emphasis came on information and decision support. Today, it has been using for communication and consultation. During the first half of the twentieth century, when punched-card and key-driven bookkeeping machines were in massive use. Firms generally ignored the information needs of managers. This practice continued with first computers, since they were restricted to accounting applications.

The name given to these early computer-based accounting applications was Electronic Data Processing (EDP) the term EDP is no longer popular, having been shortened to Data Processing (DP). Then we used the term Accounting Information System (AIS) to describe the system that process the firm's data.

The AIS produces some information as a by product of accounting system. In 1964, a new generation of computing equipment was introduced that exerted a strong influence on the manner in which computers were employed. The new computers were the first to use silicon chip circuitry, and they offered opportunities for more

processing power. The concept of using the computer as a management information system was promoted by the computer. The MIS concept recognized that computer application should be implemented for the primary purpose of producing management information. The concept was quickly adopted by many of the large firms.

Now, the computer sector has developed more than any other sector. It become the partner of the manager and for the general people to equip them self in the sophisticated world. After 1993, as the Java program (software) has came and because of its wonderful feature that is platform independent expanded its connection to each and every computer in the world at the time, added another era in this sector. Just clicking the mouse on the desktop they would reach accord the world.

2.1.7 Management Information System

Management Information Systems are those systems that allow managers to make decisions for the successful operation of business. Management information systems consist of computer resources, people, and procedures used in the modern business enterprise. The term MIS stands for management information systems. MIS also refers to the organization that develops and maintains most or all of the computer systems in the enterprise so that managers can make decisions. The goal of the MIS is to deliver information systems to the various levels of corporate managers. MIS professionals create and support the computer system throughout the company. Trained and educated to work with corporate computer systems, these professionals are responsible in some way for nearly all of the computers, from the largest mainframe to the desktop and portable PCs. (Lloyd W., 2006)

Management Information Systems is a general name for the academic discipline covering the application of people, technologies, and procedures--collectively, the information system -- to business problems. (www.answer.com)

MIS can be defined as a system that

- Provides information to support managerial functions like planning, organizing, directing, controlling
- Collects information in a systematic and a routine manner which is in accordance with a well defined set of rules
- Includes files, hardware, software, and operations research models of processing, storing, retrieving and transmitting information to the users. (Adhikari, 2005:13)

Jawadekar (2003) defines MIS as a "computerized business processing system generating information for the people in the organization to meet the information needs for decision making to achieve the corporate objectives of the organization. He further adds that the MIS begins with the definition of data entity and its attributes. It uses a dictionary of data, entity and attributes, respectively designed for information generation in the organization".

Similarly, Gupta & Sharma (1997) defines MIS as the "combination of human and computer based resources that result in the collection, storage, retrieval, communication and use of data from efficient management operations and form business planning and it is defined as the Computer based information System".

A system, typically computer-based, that collects and processes data (information) and provides it to managers at all levels who use it for decision making, planning, program implementation, and control. MIS is comprised of all the components that collect, manipulate, and disseminate data or information. It usually includes hardware, software, people, communications systems such as telephone lines, and the data itself. The activities involved include inputting data, processing of data into information, storage of data and information, and the production of outputs such as management reports. (knowlegestorm.com)

Microsoft Encarta Reference Library describes the Management Information System as “A system helping managers run company: a system for gathering the financial, 27 productions, and other information that managers need to operate a business, especially a system that is computerized”.

Similarly Argyris (1991) defines MIS as "a system using formalized procedures to provide management at all levels in all functions with appropriate information based on data from both internal and external sources to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible".

It will be noted from the above definition that the emphasis is on the uses to which the information is put. Planning, directing and controlling are the essential ingredients for "management".

In essence, the processing of data into information and communicating the resulting information to the user is the key function of MIS. It should, therefore, be noted that MIS exist in organizations in order to help them achieve objectives, to plan and

control their processes and operations, to help deal with uncertainty, and to help in adapting to change or, indeed, initiating change. (Adeoti-Adekey, 1997)

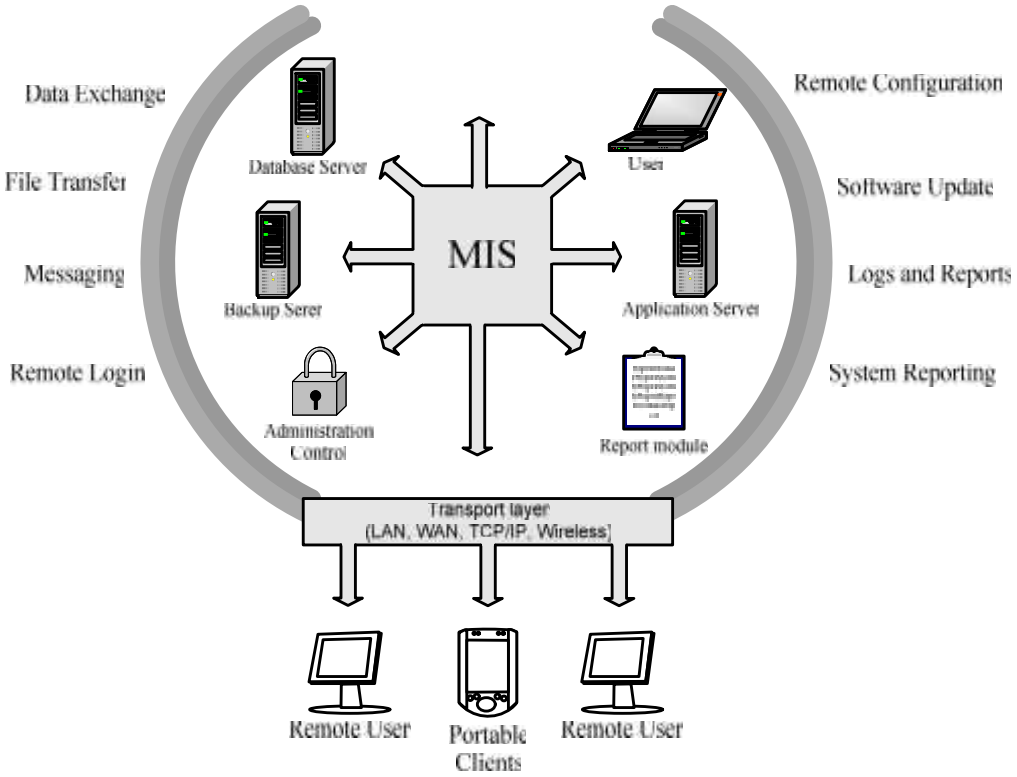


Figure 2.10: Components of MIS

2.1.7.1 Management Information System Functions

MIS is regarded as valuable organizational resources. Simply put an information system is a system for accepting data/information as a raw material and through one or more transmutation processes, generating information as a product. It comprises the following functional elements which relate to the organization and its environments:

- **Perception –** initial entry of data whether captured or generated into the organization;

- **Recording –** physical capture of data is recording. Capturing data from various internal and external sources, capturing mode may be manual or through some terminals;

- **Processing –** transformation according to the "specific" needs of the organization;

- **Transmission –** the flows which occur in an information system;

- **Storage –** presupposes some expected future use;

- **Retrieval –** search for recorded data;

- **Presentation –** reporting, communication; and

- **Decision Making –** a controversial inclusion, except to the extent that the information system engages in decision making that concerns itself. (Adeoti-Adekeye, 1997:321)

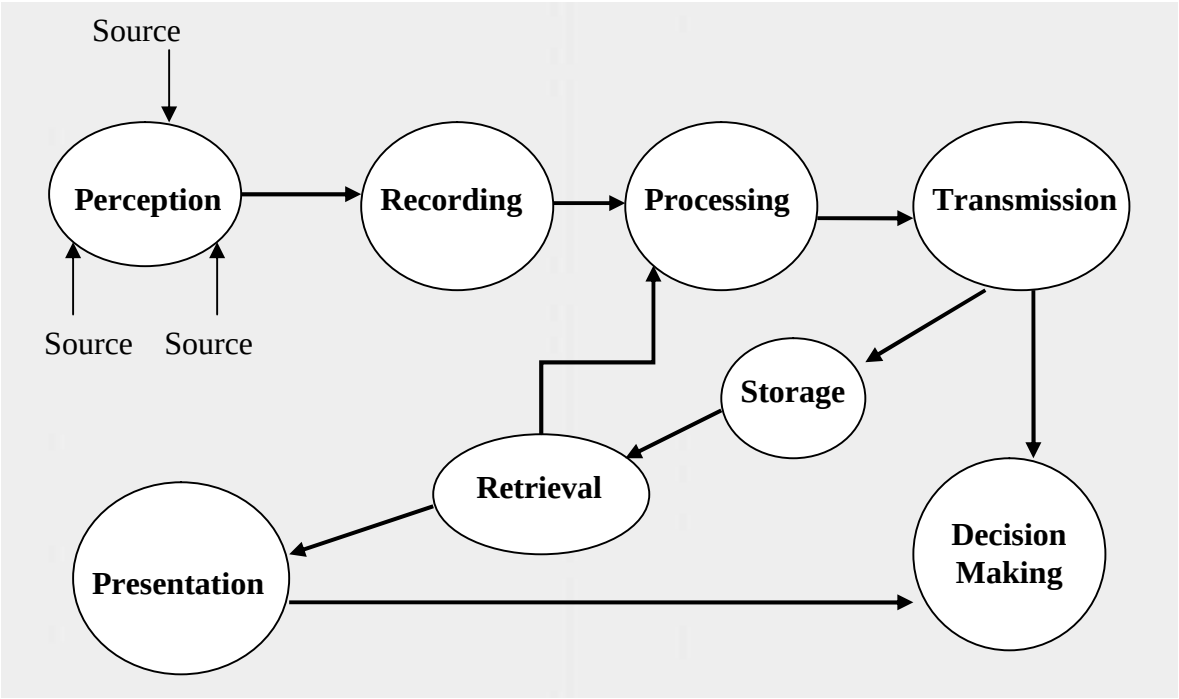


Figure 2.11: MIS Functions

2.1.7.2 Importance of MIS to Management

In all but the smallest organizations management rarely observe operations directly. They attempt to make decisions, prepare plans and control activities by using information which they obtain from formal sources – for example, the organization's MIS and also by informal means such as face-to-face conversations, telephone calls, through social contacts and so on.

A management information system is generally thought of as an integrated, user-machine system providing information to support operations, management and decision-making functions in an organization. As a matter of fact, an MIS is a special-purpose system useful for management in an organization. MIS is an accessible and rapid conveyor belt for appropriate high quality information from its generation to its users. The heart of an effective MIS, therefore, is a carefully conceived, designed and

executed database. Its level corresponds to adaptive decisions. The characteristics of MIS in practice include:

- An information focus, designed for managers in an organization;
- structured information flow;
- An integration of data processing jobs by business function, such as production of MIS, personnel MIS and so on; and
- Inquiry and report generation, usually with a database.

The MIS era has eventually contributed a new level of needed management information. The increasing interest in MIS had led to much activity in developing techniques and software for data management. However, it should be noted that the new thrust in MIS is on the uses to which the information is put and not how it is processed. The emphasis is on managing the information as a resource, which is important, and not on the intermediate processing stage.

Managements are faced with an accelerating rate of change and an ever more complex environment. Managers need relevant information, which is information that increases their knowledge and reduces their uncertainty. Thus it is usable by the manager for its intended purpose. Without relevant information, no manager can function effectively. A worthwhile extension to the well-known adage that “management get things done through people,” would be that management get things done through people, by using relevant information retrieved from MIS. It is not an exaggeration to state that MIS is the lifeblood of management.

The efficient performance of an organization is dependent very much on the internal performance of the organization's resources. To illustrate the use of a management information system in monitoring the performance of resources, the following examples from the human resource aspect of a management information system will suffice. An organization's output performance is directly related to the motivation and performance of its human resources.

A high staff turnover rate which is monitored by the management information system and identified as occurring in a particular department or in a particular category of staff can indicate poor performance on the part of the employer. Also, a high turnover rate of clerical staff may indicate that management practices do not assist in providing for career progression, personal development or training opportunities. Through the identification of poor human resource management, corrective measures may be taken which will in turn improve the organization's output performance. (Adeoti-Adekeye, 1997:325)

It may conclude that MIS is the lifeblood of any organization. Both public and private sectors must be committed to seeking formal or organized information before taking decisions. Management problems will be provided with specific answers through computer simulations and gaming techniques. Today's managers must be careful, as they can become inundated with only marginally relevant facts rather than be presented with concrete and absolutely useful information. This situation can be avoided where a virile and functional MIS unit is put in place.

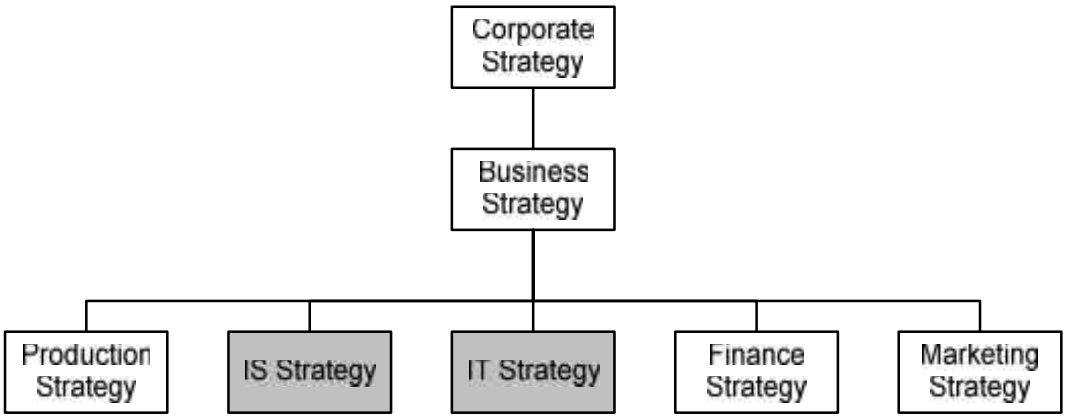


Figure 2.12: Corporate Strategy and Management Information System

2.1.7.3 Role of MIS

The role of the MIS in an organization can be compared to the role of heart in the body. The information is the blood and MIS is the heart. In the body the heart plays the role of supplying pure blood to all the elements of the body including the brain. The heart works faster and supplies more blood when needed. It regulates and controls the incoming impure blood, processes it and sends it to the destination in the quantity needed. It fulfills the needs of blood supply to human body in normal course and also in crisis. (Jawadekar, 2003:7)

MIS Plays exactly the same role in the organization as heart plays in body. The system ensures that an appropriate data is collected from the various sources, processed, and sent further to the entire needy destination. The system is expected to fulfill the information needs of an individual, a group of individuals, the managers and the top management. The MIS satisfies the diverse needs through a variety of systems such as Query Systems, Analysis Systems, Modeling Systems, and Decision Support System. The MIS helps in Strategic Planning, Management Control, Operational Control, and Transaction Processing.

Organization and Information Concept

Levels of Management	**Use of MIS**	**Nature of Information**	**Value of Information**	**Reporting Media and Structure**
CEO & Board	Goal Setting, Policy Making, Strategic Planning	Key, Accurate, Futuristic	Very High, Meeting High Risk & Uncertainty Situation	Unstructured
Middle Division, Department, Product Managers	Decision Making Problems solving Monitoring & Achieving Business Goals, Planning & Schedule	Exception, Precise, Analytical Decision Oriented, Related to Past, Current, Future	High, Meeting Risky Situation	Ad hoc, unformatted, Regular but Modified Frequent Display & Print
Supervisory, Jr. Managers, Supervisors, Officers	Problem Solving & Meeting Targets	Processed & Summarized and Classified for the Current Period	Low, Meeting Near Certainty Situation	Given at fixed Internal Display & Print
Operational Assistants, Clerks	To know the status facts	Detailed Relating to Current Period	Lowest	Lowest Volume Print

Table 2.1: Organization and Information Concept

The MIS helps the clerical personnel in the transaction processing and answers their queries on the data pertaining to the transaction, the status of a particular record and references on a variety of documents. The MIS helps the junior management personnel by providing the operational data for planning, scheduling and control, and helps them further in decision making at the operations level to correct an out of control situation.

The MIS helps the middle management in short term planning, target setting an controlling the business functions. It is supported by the use of the management tools of planning and control. The MIS helps the top management in goal settings, strategic planning and evolving the business plans and their implementation.

The MIS plays the role of information generation, communication, problem identification and helps them in the process if decision making. The MIS, therefore, plays a vital rile in the management, administration and operations of an organization.

2.1.7.4 Problems with MIS

There is abundant evidence from numerous surveys conducted in developed countries, particularly in the UK and USA, that existing MIS, often using advanced computer equipment, have had relatively little success in providing management with the information it needs. Reasons discovered include the following:

- Lack of management involvement with the design of the MIS;

- Narrow or inappropriate emphasis of the computer system;
- Undue concentration on low-level data processing applications particularly in the accounting area;
- Poor appreciation by information specialists of management's true information requirements and of organizational problems; and
- Lack of top management support.

To be successful, an MIS must be designed and operated with due regard to organizational and behavioral principles as well as technical factors. Management must be informed enough to make an effective contribution to system design, and information specialists (including systems analysts, accountants and operations researchers) must become more aware of managerial functions and needs so that, jointly, more effective MIS are developed. Management do not always know what information they need and information professionals often do not know enough about management in order to produce relevant information for the managers they serve.

There is no doubt that better communication between management and information professionals and a wider knowledge by both groups of MIS principles would greatly facilitate the task of developing relevant and appropriate information systems. It should be noted, however, that there is no simple checklist of essential features which, if followed, will automatically produce the perfect MIS. What is required is an awareness and understanding of key principles and functions so that the design, implementation and operation of the MIS are the result of informed decisions and judgment rather than haphazard development without regard to real organizational requirements.

For the management information system, computer is not essential but can be very useful. The study of MIS is not about the use of computers, it is about the provision and use of information relevant to the user. Undoubtedly, there is an important and growing role for computers and IT in MIS but the technology must be used with discretion. Computers are good at rapid and accurate calculations, manipulation, storage and retrieval but less good at unexpected demands or qualitative analysis or where genuine judgment is required. Computers, certainly, can be used to the best advantage for processing information. (Adeoti-Adekeye, 1997:326)

2.1.7.6 Limitations of MIS

It is no doubt that MIS is an effective tool for decision making in any organization. But MIS has many limitations, which should be known and should be minimized for effective and proper use of MIS. Some limitations of MIS are:

- MIS cannot replace managerial judgment in decision making.
- The quality of output of MIS is directly proportional to the quality of input and process.
- MIS cannot provide tailor made information package. It is required to analyze the available information before decision making.
- MIS takes only quantitative factors into account.
- MIS less useful for making non programmed decisions

- MIS is less effective in organizations where information is not being shared with others.
- MIS is less effective due to frequent changes in top management, organizational structure and operational staff.
- In the absence of computer and other hardware and software, MIS may not produce fast and effective output. (Adhikari, 2005:19)

2.1.7.7 Factors of Success and Failures of MIS

Implementation of MIS is not an end itself rather a beginning, therefore, a continuous study and development should be carried out to achieve the goals and objectives of the organization through proper information system. There are many factors which contribute success and there are also many factors that contribute failure to MIS.

Factors Contributing to Success of MIS

If MIS is to be a success, then it should have all the features listed bellow:

- MIS is integrated in the management function. It sets clear objectives to ensure that MIS focuses on the major issues of the business. Also adequate development resources are provided and human & organizational barriers to progress are removed,
- An appropriate information processing technology required to meet the data processing and analysis needs of the users of MIS is selected,

- MIS is oriented, defined and designed in terms of the users requirements and its operational viability is ensured,

- MIS is kept under continuous surveillance, so that its open system is modified according to the changing information needs,

- MIS focuses in results and goals, and highlights the factors and reasons for non achievements,

- MIS is not allowed to end up into and information generation mill avoiding the noise in the information and the communication system,

- MIS recognizes that a manager is a human being and therefore, the systems must consider all the human behavioral aspects in the process of management,

- MIS recognizes that the different information needs for different objectives must be met with. The globalization of information in isolation form the different objectives leads to too much information and its non use,

- MIS is easy to operate and therefore, the design of MIS has such good features which make up a user friendly design,

- MIS recognizes that the information needs become obsolete and new needs emerge. The MIS design, therefore, has a potential capability to quickly meet newer and newer needs of information,

- MIS concentrates on developing the information support to manage critical success factors. It concentrates on the mission critical applications serving the needs of the top management.

Factors Contributing to Failures

Many times, MIS is a failure. The common factors which are responsible for this are as follows:

- MIS is conceived as a data processing and not as an information system,
- MIS does not provide that information which is needed by managers but it tends to provide the information generally the functions calls for. MIS then becomes an impersonal function,
- Underestimating the complexity in the business systems and not recognizing it in the MIS design leads to problems in the successful implementation,
- Adequate attention is not given to the quality control aspects of the inputs, the process and the outputs leading to insufficient checks and controls in MIS
- MIS is developed without streamlining the transaction processing systems in the organization,
- Lack of training and appreciation that the users of the information and the generators of the data are different, and they have to play and important role in the MIS
- MIS does not meet certain critical and key factors of its users, such as a response to the query in the database, an inability to get the processing done in a particular manner, lack of user friendly system and the dependence in the system personnel,

- A belief that the computerized MIS can solve all the management problems of planning and control of the business,

- Lack of administrative discipline in following the standardized systems and procedures, wrong coding and deviating from the system specifications result incomplete and incorrect information.

- MIS does not give perfect information to all the users in the organization. Any attempt towards such a goal will be unsuccessful because every user has a human ingenuity, bias and certain assumptions not known to the designer. MIS cannot make up these by providing perfect information. (Adhikari, 2005:24-26)

2.1.8 Decision Support System (DSS)

Because there are many approaches to decision-making and because of the wide range of domains in which decisions are made, the concept of decision support system (DSS) is very broad. A DSS can take many different forms. In general, we can say that a DSS is a computerized system for helping make decisions. A decision is a choice between alternatives based on estimates of the values of those alternatives. Supporting a decision means helping people working alone or in a group gathers intelligence, generate alternatives and make choices. Supporting the choice making process involves supporting the estimation, the evaluation and/or the comparison of alternatives. In practice, references to DSS are usually references to computer applications that perform such a supporting role. (S. L. Alter, 1980)

According to Turban (1995) DSS is "an interactive, flexible, and adaptable computer-based information system, especially developed for supporting the solution of a non-

structured management problem for improved decision making. It utilizes data, provides an easy-to-use interface, and allows for the decision maker's own insights".

For Sprague and Carlson (1982), DSS are "interactive computer-based systems that help decision makers utilize data and models to solve unstructured problems".

2.1.9 Introduction to Commercial Bank

The word ‘Bank’ is derived from the Italian word BANCA meaning a counter table or bench used by medieval moneychanger. Oxford Advanced Learners Dictionary of Current English defines bank as “An organization that provides various financial services for example keeping or lending money.”

It is difficult to define the word ‘Bank’ because of the changing role and function of bank from age to age and country to country. A banker or a bank is a person, firm or company, having a place of business where credits are opened by the deposit or collection of money or currency subject to be paid or remitted upon draft, check or order or where money is advanced or loaned on stocks, bond, bullion and bill of exchange and promissory notes are received for discount and sale etc. (www.wikipedia.org)

An ordinary bank is run on business lines with a view to earning profit and a central bank on the other hand is primarily meant to shoulder the responsibility of safeguarding the financial and economic stability of the country, it acts only in the public interest and for the welfare of the country as a whole, and without, regard to profit as primary consideration. (www.answers.com)

A commercial bank is one which exchange money, accepts deposits, grants loans and performs commercial banking functions and which is not a bank meant for co operative, agriculture, industries or for such specific purpose. (Commercial bank Act 2031)

2.1.10 History of Banking

Many of today's banking services were first practiced in ancient Lydia, Phoenicia, China, and Greece, where trade and commerce flourished. The temples in Babylonia made loans from their treasuries as early as 2000 BC. The temples of ancient Greece served as safe-deposit vaults for the valuables of worshipers. The Greeks also coined money and developed a system of credit. The Roman Empire had a highly developed banking system, and its bankers accepted deposits of money, made loans, and purchased mortgages. Shortly after the fall of Rome in ad 476, banking declined in Europe.

The increase of trade in 13th-century Italy prompted the revival of banking. The moneychangers of the Italian states developed facilities for exchanging local and foreign currency. Soon merchants demanded other services, such as lending money, and gradually bank services were expanded.

The first bank to offer most of the basic banking functions known today was the Bank of Barcelona in Spain. Founded by merchants in 1401, this bank held deposits, exchanged currency, and carried out lending operations. It also is believed to have introduced the bank check. Three other early banks, each managed by a committee of city officials, were the Bank of Amsterdam (1609), the Bank of Venice (1587), and

the Bank of Hamburg (1619). These institutions laid the foundation for modern banks of deposit and transaction.

For more than 300 years, banking on the European continent was in the hands of powerful statesmen and wealthy private bankers, such as the Medici family in Florence and the Fuggers in Germany. During the 19th century, members of the Rothschild family became the most influential bankers in all Europe and probably in the world. This international banking family was founded by German financier Mayer Amschel Rothschild (1743-1812), but it soon spread to all the major European financial capitals.

The Bank of France was organized in 1800 by Napoleon. The bank had become the dominant financial institution in France by the mid-1800s. In Germany, banking experienced a rapid development about the middle of the 19th century with the establishment of several strong stock-issuing or publicly owned banks.

Banking in the British Isles originated with the London goldsmiths of the 16th century. These men made loans and held valuables for safekeeping. By the 17th century English goldsmiths created the model for today's modern fractional reserve banking—that is, the practice of keeping a fraction of depositors' money in reserve while extending the remainder to borrowers in the form of loans. Customers deposited gold and silver with the goldsmiths for safekeeping and were given deposit receipts verifying their ownership of the gold deposited with the goldsmith. These receipts could be used as money because they were backed by gold. But the goldsmiths soon discovered that they could take a chance and issue additional receipts against the gold to other people who needed to borrow money. This worked as long as the original

depositors did not withdraw all their gold at one time. Hence, the amount of receipts or claims on the gold frequently exceeded the actual amount of the gold, and the idea that bankers could create money was born. (Microsoft Encarta Reference Library, 2004)

In Nepal, the history of development of modern banking system is not very long as compared to other developed countries. According to Pant (1971), Money lending business was taken as an occupation of the people in the very ancient times. Prior to the establishments of financial institution, the innovation of interest bearing private-debt such as bonds, mortgages and loans had existed. The history of banking and currency in the country becomes definite only from the fifth century, which is the Lichhavi period when first coins were minted.

Banking activities in ancient time can be inferred from references in the history of Nepal. Rebuilding of Kathmandu in 723 was done by Guna Kama Dev from the borrowings. In the Nepalese chronicle, it was recorded that a new era known as Nepal Sambat was introduced by Sankhadhar Sakhwa (a sudra caste merchant) of Kantipur in 879 or 880 AD after having paid all the outstanding debts in the country. This is considered to be an adequate basis for a logical inference that the money lending operations were in practice during that period.

Further, Dixit (1991) state that, the reign of Jayasthiti Malla is recognized as the glorious age of the fourteenth century. At the end of fourteenth century King Jayasthiti Malla the ruler of Kantipur classified the people in to 64 classes according to their occupations. In this classification there was a group called ‘Tanka Dhari’ whose job was to lend money. In other word the ‘Tanka Dhari’ were authorized to deal in money business. This is considered as evidence to the existence of

professional money lenders and banks during the medieval period of Nepal. It is believed that money lending business particularly financing the foreign trade with Tibet, because it was quite popular during the reign of Mallas. Advances for commercial transactions against personal security or merchandise, remittance service for foreign trade with India and Tibet and loans for personal user were common.

In the absence of any organized financial institution providing credit to support agriculture and other necessities. People had to take loan from money lenders who charged high rate of interest and other dues. The money lenders even practiced the capitalization of interest upon failure to repay back the principal amount on time. These private money lenders used to extend loans to the people on the collateral of land, house and precious metals. This result was worsening the economic condition of poor people. At many times these poor people had to loose their land and property due to their inability to repay the money in the stipulated time.

According to Nepal Rastra Bank report (1996), During the period of Ranodip Singh, who was the prime minister for 8 years (1877-1885) took a concrete step by establishing a fully government institution called ‘Tejarath Adda’ in Kathmandu valley. The ‘Tejarath Adda’ was established in 1880 AD. The main purpose of setting up this ‘Tejarath Adda’ was to provide credit facilities to the general people at a very concessionaire rate of interest i.e. 5 percent. The establishment of this institution marketed the beginning of extending credit through an organized financial institution in Nepal. The ‘Tejarath Adda’ disbursed credit to the people especially on the collateral of gold and silver. Government employees were also eligible to get loan from this institution, the loan as repayable from their salary. During the prime minister ship of Chandra Shamser the ‘Tejarath Adda’ extended its services by

opening branches in some cities outside the valley, including Terai region. Legal provision was also made to prevent the practice of capitalizing the interest on loans disbursed by private dealers. Thus the establishment of the 'Tejarath Adda' could be regarded as the premier foundation of modern banking in Nepal.

The 'Tejarath Adda' was set up with the sole objective of providing credit. It did not accept deposits form the public. Thus in the absence of any saving mobilization, the 'Adda' faced financial problems making it impossible to cater to the credit need of the general population throughout the country. For few decades, after establishment of 'Tejarath Adda', neither there was any steps taken to set up other financial institution nor there was any effort to expand the services to 'Tejarath Adda' to more parts of the country.

Panta (1971) further explore that, another financial institution specially established in 1991 BS for the future welfare of the government staff. It was 'Sainik Dravya Kosh' before coming into existence of it, the government staff of that period had to face much more economic difficulties after retirement to regulate the provident fund of the Sainik only.

During the Rana regime a good relation was established between Nepal and Britain. There was the expansion of trade and commerce of Nepal, therefore, need of establishment of banking was felt for dealing financial transactions. With a view to solve their need, the Udhyog Parishad (Industrial Development Board) was constituted in 1936. in the year after its formation, the Udhyog Parishad formulated the Nepal Bank Act in 1937 AD. In the same year, Nepal Bank Limited with the co-operation of Imperial bank of India came into existence under the Nepal Bank Act

1937 as the first commercial bank of Nepal. The establishment of this bank laid the foundation of modern financial system in Nepal.

Unlike the 'Tejarath Adda' Nepal Bank Limited had sufficient fund to extend its services since it was a joint venture between the government and the private sector. Nepal Bank Limited remained as the only commercial banking institution until the establishment of another commercial bank namely Rastriya Banijya Bank (RBB) in 1966. It had a free hand in the commercial business of the country and import and export trade was solely handled by the bank.

In the history of banking in Nepal, Basnet (1999) states that, the establishments of Nepal Bank Limited solved to the great extent the problem of commercial banking in Nepal. it made available facilities for depositing and borrowing money for commercial and agriculture pursuits. It also provided remittance facilities for setting internal and external payments. In short, the formation of Nepal Bank Limited contributed significantly to creating banking habit of the people, widening magnetized area and helped the government and business community various ways. Apart from commercial banking functions, it used to manage all the business transaction of the government including entire business of currency exchange due to the absence of a Central Bank.

Before the establishments of Nepal Rastra Bank, Nepalese economy was characterized by dual currency system. Indian currency was more common used as a medium of exchange. Nepal Rastra Bank came in to existence as the central bank of the country fully subscribed by the government.

And there after many commercial banks was established like Agriculture development Bank, Nabil Bank, Nepal Investment Bank, Standard Chartered Bank. After the

political change of 2046 new government overhauled the overall policy of the country instead of continuing the sectored reform program. The number of joint venture banks grew dramatically with the introduction of liberal and market oriented economic policy. Himalyan Bank, Nepal SBI Bank, Nepal Bangladesh Bank, Everest Bank, Bank of Kathmandu, Nepal Credit and Commerce Bank, Nepal Industrial and Commercial Bank, Lumbini Bank, Machhapuchhre Bank, Kumari bank are the result of liberal and market oriented economic policy.

2.2 Review of Related Studies

2.2.1 Review of Journals

Senior Lecturer of Faculty of Information and Engineering Systems, Leeds Metropolitan University, Leeds, UK, Colin Leek (1997) on his article "Information Systems Frameworks and Strategy" says "unfortunately, one of the major problems with information system provision is the lack of coherence between the various interested parties. In practice different people in the organization will interpret the concept of management information system (MIS) in very different ways. The information technology-oriented will see it as hardware and software. Some users may see it as a glorified filing system, others as a communication channel: some will see it as a threat, others as a form of power and others as a liability. There is also often a lack of collaborative effort on information systems proposal and provisions between different departments and divisions between different departments and divisions within an organization." He adds more "often boundary between an information system and the supporting operational systems is blurred. The operational systems and information systems are not usually two discrete sets of systems. The stock monitoring (operational system) and the stock optimization

(information system) will probably be a part of a stock control system. Some of a business's information systems are conceived and built as integral parts of an operational system, others as specific projects in their own right".

In an article titled "Managing Your Information Across the Enterprise", Martin Jerresand (2002) opines "if it were ever possible to get too much of a good thing, it's certainly the case of with information. The sheer volume of new information has dramatically increased the complexity of finding what you need to ensure that the relevant content is delivered to each audience, they must start to manage content more efficiently and effectively. With more easy access to the right content via an internet portal, employees are more effective, make better decisions and are more equipped to help generate new business or higher profits. In addition, easy access to the appropriate corporate or product information strengthens customer and partner relationships, decreasing costs and potentially increasing sales".

With reference to the review of article published in Rising Nepal by Jyoti Ratna Tamrakar (2002) entitled "Importance of MIS" – "the greatest achievement of last century is computer. The world now without computer is simply an unimaginable. A work, which takes many days to finish, can be accomplished in a few minutes with the help of computer. It seems that use of computer and other information technology devices are growing in our country. The primary function of MIS is to provide accurate, timely and relevant information needed for efficient decision making by the manager in an organization. Information has always been a valuable resource in personal corporate or social level irrespective of the level of the development meaningful and interrupted information is the output of system. So for this MIS came into exist and it is one of the major Computer Based Information System." The article

further stressed "there must be one MIS department in every government offices to take right decision in right time for effective management of an organization".

Jessica Morris (2003) on her article "Management Information Systems" opines "every commercial company out today deeds to sell their product in order to survive. To do that, they need ways to inform their customers about their products. The company also needs to gather information about their target customer to aid them in developing products and services. All of these things are accomplished through marketing and marketing information systems. There are several components that combine to make up a marketing information system. The first part of a marketing information system (MKIS) is the Internal Reports System. This system gathers information reports such as orders, stock-outs, inventory levels, and so on. The second system is comprised of the Marketing Intelligence System. This is the set of procedures that is used by managers to receive everyday information on important developments. The third subsystem is called the Target Market. This section includes Transaction Processing Systems. TPS deals with sales transactions and collecting data. The fourth system is called Marketing Decision Support System which is correlated to the TPS. This sector answers "what-if" questions to managers. The last system is called Market Research. Here, the marketing department researches a specific situation that the firm is facing. The technology associated with the computer and the web makes these practices easier and less costly".

2.2.2 Review of System

2.2.2.1 Historical Newspaper Management System

A management information system for historical newspapers that supports both digital library functionality and archival management of original newspaper articles is being developed for the needs of the Vikelea Municipal library of Heraklion, Greece. It includes OCR-based page analysis and article clipping, article-level metadata generation, semantic indexing and multifaceted classification of articles using a built-in thesaurus. They aim to improve the classification, completeness and precision of retrieved information-supporting both metadata and full-text searching – and to provide user – friendly Web access.

The structural particularities of digitized newspaper documents pose a significant challenge in creating an efficient digital library system interface. A newspaper page consists of articles (text blocks), pictures and advertisements that refer to a variety of real-world events, activities, actors and/or objects. Consequently, the page itself is not the basic conceptual unit of information and is therefore not suitable for a through metadata-based description of the material. Instead we focused on the notion of the segment as a basic conceptual unit. A segment may consist of one or more parts of the newspaper document that are conceptually relevant (i.e. an article, a group of articles or advertisement etc).

The historical newspaper management system implements a 'hybrid' form of classification and searching based on the following elements:

- user-generated metadata for each annotated segment of the original newspaper based on the CIDOC Conceptual Reference Model ISO/DIS 21127

- Full text of the annotated segment of the newspaper produced by an OCR (optical character recognition) session.

The historical newspaper management system consists of the following subsystems:

- **Fedora Open-Source Digital Repository System (FOSDRS):** At the core of the Historical Newspaper Digital Library is the Fedora open-source digital repository system, which is a flexible content repository system that provides organizations with flexible tools for managing and delivering their digital content. Fedora is jointly developed by Cornell University and the University of Virginia Library.

- **Thesaurus Management System(TMS) :** The functionally of the digital repository is enhanced by the use of SIS Thesaurus Management System, which is a semantic network used to store, develop and access multiple thesauri and their interrelations under one database schema. The semantic interoperability of the digital repository with the thesaurus management system aids users in classifying and retrieving newspaper articles.

Following two tools are being used to support the system:

a) **The Documentation Tool:** It provides an efficient Web-based user interface for the insertion, filing, documentation and classification of material, and follows international standards for information modeling and interoperability. A flexible, easily deployable and user-friendly Web interface is created for this system to enable the researcher to isolate a specific conceptual entity within the document and perform an on-the-fly creation, description and storage of the produced metadata.

In addition to the creation of the segment, the system performs an extraction of the text included in the annotated segment of the document and stores it for full-text search purposes. Graphical terminology visualization techniques enable the user to annotate the document according to appropriately developed thesauri. The combination of thesauri visual graphs and auto-complete algorithms significantly reduces the time needed for the creation of metadata and supports the efficient sharing of knowledge among the members of a community of annotators.

b) **The Administrator Tool:** It allows the mass storage of digitized material (JPEG images) into the digital repository, and the transformation of this material into a format that can be annotated and indexed by the experts via the documentation tool.

The historical newspaper management system is currently being used in the Vikelea Municipal Library of Heraklion, Greece to upload a significant part of the historical archive of newspaper and magazines regarding the history of Crete. (www.ercim.org)

2.2.3 Review of Master Degree Thesis

Researcher reviewed some unpublished master degree thesis for identifying variables relevant for research. This works helps to avoid any repetition. Researcher found that majority of the master's degree thesis are concentrated on the in case study approach of public organizations. Researcher found very few theses on commercial bank's information system. Though, researcher realizes that the review of old and new master degree thesis on different organization really useful to carry out this research study.

Mr. Ishwor Acharya (2001) has conducted research entitled “Implementation of Management Information System in Royal Nepal Airlines Corporation” (a case study in marketing department). In his master degree thesis he used both primary and secondary data but findings are based on primary data which are collected through observation, questionnaire and interview method. He set following objectives for his research study.

- To present and analyze of existing information system of marketing department.
- To examine the flow of information to co-ordinate and communicate different divisions and units of marketing department.
- To provide recommendation of the basis of major findings that has been drawn out in the research study.

In his master degree thesis, his major findings are as following:

- Royal Nepal Airlines is one of the complex organizations due to its nature of service and wide area of marketing activities.
- Marketing Department of RNAC has a multidivisional structure but in reality the structure is ambiguous.
- The information system in marketing department is based on traditional paper-based information and manual filing system. There is manual flow of documents except computerized reservation system of international flight ticket through ABACUS and other CRS software.
- Lack of capable manpower and IT experts to handle sophisticated information technology to maintain proper information system within the department.

- Centralization of authority, manual flow of documents and unnecessary political pressure generally creates obstacle to perform marketing activities smoothly.

- Information announced in Nepali medium through radio Nepal regarding flights schedules by the marketing departments is quite traditional

- Lack of Proper informational infrastructure to communicate with different domestic station causes problems in planning flight schedule.

- Micro computers in each division are not utilized. They are used only to keep records to some extent and used to type material whenever needed in order to submit the report to the department director and CEO

- Information does not flow systematically due to absence of network information from different divisions and units of the marketing department.

- Due to mishandling, misunderstanding and information gap; frequent flight delay, flight cancellations and changes in flight schedules are common.

- Network-based computerized information system is necessary for the systematic flow of information.

- Traditional paper-based information system creates delay in making decisions. It should be eliminated through computerized information system.

- It is difficult to implement MIS due to lack of necessary infrastructure of the marketing department of RNAC such as: Lack of equipment & accessories, Lack of technical manpower, Lack of IT experts and Budget for installation of new technology, etc.

Mr. Ajit P. Bhattarai (2003) has conducted research entitled “Performance of Management Information System in Kumari Bank”. His master degree thesis is fully based on primary data collected through observation, direct communication with respondents and by questionnaire method. In his master degree thesis he argues that most organization spend huge amount of resources in setting up MIS infrastructure but on other hand they have not been able to fully capitalize the benefits of MIS, therefore, he tended to study the utilization of MIS and the factors which affect the performance of MIS. And his objectives for the research study are as following:

- To identify factors affecting performance of MIS.
- To examine the existing situation of software personnel of the bank.
- To study the relation o training of end user in the bank for improvement of the performance of MIS.
- To provide suggestions on the basis of the finding.

And, regarding his research work, his major findings are as following:

- Majority of the users of the MIS consider MIS to be Important
- Majority of the users of the MIS consider that MIS helps in decision making.
- Use of MIS is directed more towards extraction of current information rather than historical information.
- MIS is fulfilling the information needs of the users to different degrees of satisfaction. Higher management is less satisfied than the middle management.

- Further improvement in utilization of MIS needs better communication and training between the various stakeholders.
- MIS users are comfortable using the product and have a good understanding of the system.
- MIS users are moderately satisfied with the MIS.
- There is amole room to increase the use of MIS.
- The factors which will improve the utilization of MIS are: “Good communication channel”, “Training to end user”, “Training to software personnel”.

Satya Narayan Shrestha (2004) had conducted a research study entitled "Role of MIS in Franchising Network". He states that Population Services International (PSI) – a Social Marketing (SM) and Social Franchising (SF) Organization, is aware about aforementioned fact and significance of Information System. It has established a comprehensive and well organized/managed Management Information System. PSI/Nepal has a well organized and well established MIS. In PSI, various modules of MIS are being used. Modules like MIS for sales (for Marketing Department), MIS for Inventory (for warehouse), MIS for Payroll (for HR and Administration Department) and MIS for Finance are being used in PSI. All modules are integrated are capable of cross functioning, querying, retrieving information, and generating information as and when required.

This thesis is completely based on the specific module/component of PSI's integrated MIS. The component of MIS that researcher has chosen for his study – "Franchising Network" stores, evaluates, monitors and generates reports, which is used by

management authorities for structured decision making. The implication of MIS in monitoring and evaluation of Franchising Network and its outcomes has been studied. Some specific objectives of researcher's study are as follows:

- To analyze and study the current Information System for Franchised Network.
- To analyze the software and hardware environment of current Information System.
- To evaluate appropriateness and effectiveness of current Information System.
- To analyze the effectiveness of MIS in monitoring and evaluation of franchising network.
- To provide useful suggestions and recommendation to PSI on its current information system for franchising network so as to improve its performance and reliability.

Shrestha concluded that this system has proved to be an information mine and reliable source of information, to all the personal of PSI's franchising department. Personnel at various levels are acquiring required information from the system and implementing it in their daily operation. This system thus is successful to some extent to enhance the productivity and efficiency of personnel and is aiding to make quality decision, which in turn is helping the organization to achieve its ultimate goal.

However, Mr. Shrestha did not use data flow diagram and flow chart to present the data in study. He also did not mark any findings of the information system after completion of data presentation and analysis. He has only recommended enhancing information system like hardware and software environment. He has no specific

recommendation for the betterment of the use skills of the system as well as information system itself.

Bhaskar Shrestha (2005) conducted research entitled “Human Resources Information System in Yeti Airlines”. The study focused on the human resources information system of yeti airlines. The main objective of study was:

- To examine the existing information system of Yeti Airlines
- To evaluate the application of existing Information System in Human Resource Management activities in Yeti Airlines
- To identify problems or any gaps in the existing Information System in Yeti Airlines
- To recommend suggestive packages to improve the Information System of Yeti Airlines

He conducted study based on primary and secondary data. Primary data were collected through formal and informal discussion with different sections chief, computer programmers, and data entry persons and data coder/editors. Secondary data were collected from the published and unpublished documents of the airlines. The data so collected was analyzed by using different tools and techniques such as Flowchart and Data Flow Diagram.

On his research study he found that the personal department of this organization is handling all the information regarding the human resource management. The function of human resource management includes the recruiting system, payroll system, personal information system and others. He found that information processing was

partially automated and the organization has potential capacity of making whole information system fully automated. The study was mainly based on the data provided by the Yeti Airlines, Primary data to cover the individual opinions was not considered.

Manindra Raj Joshi (2005) carried out a study "Management Information System in Nepalese Hospital". He analyzed whether the current flow of information that normal hospital follows is good enough to get the required information at the right time, in the right quantity and in the right format. To support his research study, he further analyzed the system of Bir Hospital with compare to Tilganga and Sidhartha Apollo Hospital.

The study is based on the information provided by the staff members and doctors. He used different tools and techniques such as Database and Tables, Data Flow Diagrams and Flowcharts to analyze the data.

On his research he found that current scenario of most of the private and public hospital are totally manual where the same data are entered many times which makes the retrieval of information very complicate and data analysis techniques are not feasible and effective. He recommended that the implementation of MIS in Hospital would improve the transaction of hospital drastically. From the new system the concerned personnel can generate required information at the right time and in the right format.

He considered only the Impatient and Outpatient transaction in his study. The transaction such as posting of cash related transaction to the accounting; housekeeping and nutrition etc. were not interlinked on study. The study based on research conducted on only three hospitals: Sidhartha Apollo Hospital, Tilganga Eye

Hospital, and Bir Hospital. It was not good enough to project the hospital related transaction and developed the Hospital Management Information System based on only these three hospitals.

2.3 Research Gap

Above mentioned reviews show that most of the studies have only highlighted the study of the existing system, study of hardware and software environment, existing situation of personnel, effectiveness of MIS and general type recommendation. In this thesis, author has tried out to eliminate most of the drawbacks that were found in earlier researches. This research is carried out to identify the importance of MIS in the Bank of Kathmandu, one of the leading commercial 'A' class financial institution which differ it from other researches. While reviewing the thesis of Shanker Dev Campus library, it is found that very less thesis talks about the Management Information System at a bank, its components, importance and its proper utilization in the organization. Therefore, author believes that this research not only traces out the general overview of system and its components but also suggests designing and implementing new, efficient, economy, less time consuming dynamic and ultra modern information system which will assist managers to fight against future uncertainties and of curse to set new strategy to achieve desired goal in today's competitive market of banking.

Similarly, most of the thesis has just studied the system and its components. In the contrary, this research paper has tried to be complete in most of the aspects of banking and customer service. It not only gives the over view of the system but also facilitates the organization to the improvement of its services. It has been seen that all the researches are carried out in the organizations with in the Kathmandu valley but this

research has been carried out in three branch offices of BOK located in the mid-far western region of Nepal. Therefore, it has been assumed that this research paper will carry out the scenario of status, utilization, performance and success of MIS in the semi-urban area of Nepal, little far from ultra-modernization.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research question. The research design is exploratory and descriptive in nature.

This study examines the Current status of MIS with a view to make suggestions for improving the utilization of MIS. Keeping in view the nature of the study, an exploratory research design is applied because it implies to find out the current status of existing Management Information System.

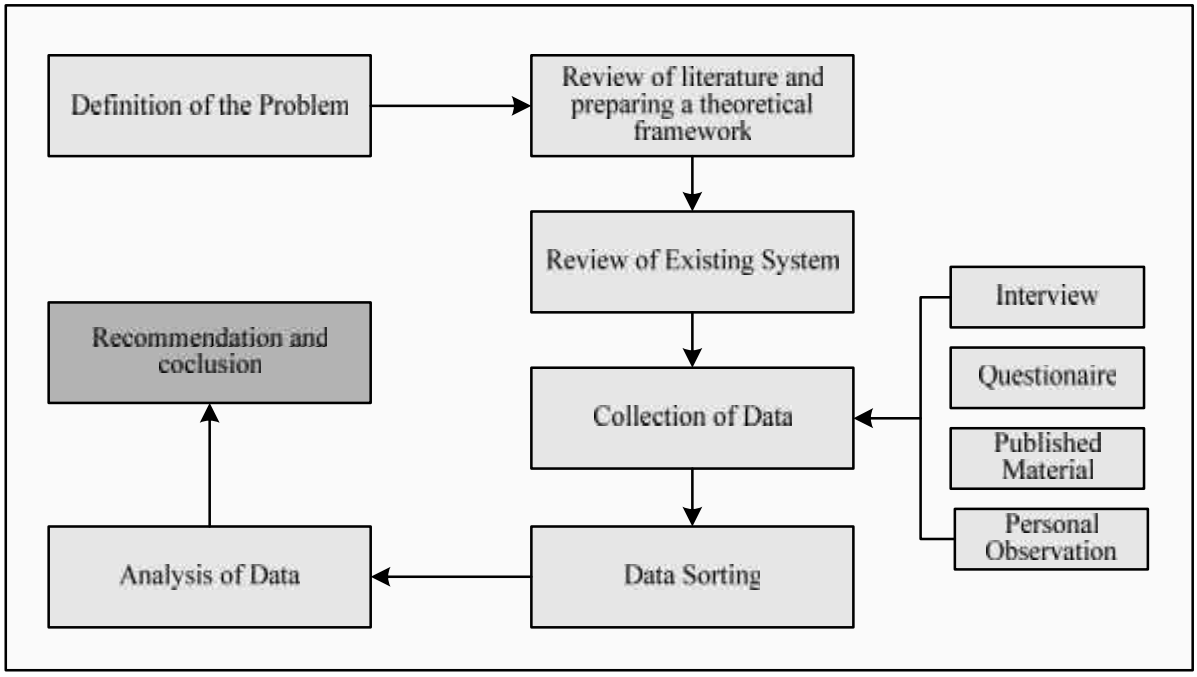


Figure 3.1: Methodology of the Research System

3.2 Population and Sample

The term ‘Population” universe for researcher, means all the number of any well defined class of people event or objects. In this research all the employee of Bank of Kathmandu has been taken as research populations. A population in most studies usually consists of a large number of people, events of objects. Because of its large size it is difficult to collect detailed information from each member of the population. Currently BOK has 25 branches with 484 employees; therefore it is not possible to cover the entire employee in this research study.

In this regard, Surkhet, Nepalgunj and Kohalpur Branch are selected for sample. All employees of Surkhet, Nepalgunj and Kohalpur Branch are supplied with set of questionnaire and interview is taken with concerned personnel and branch manager. Apart from this, researcher visited few other branches located in the Katmandu valley and interview is taken with concerned personal and branch manager. Further, General public who visited the Surkhet., Nepalgunj and Kohalpur Brach for different purpose has been taken as sample also. At least 39 individuals have been taken as sample from general public. Attempt has been made to include equal no of persons from a class of groups.

3.3 Sources of Data

Data is very reliable and effective source of all research reports. Data is a foundation of all research projects. Data may be obtained from several sources. It also depends on the objectives and necessity of the research report. The research design for this fieldwork was based mostly on the exploratory design method. Thus, the sources of data collection were both based on primary and secondary sources. Keeping in the

view of explorative nature of the study, primary source is the main source of information and data. The sources of data collection can be better being explained as

a) Primary Data

It is first hand unpublished data. Primary data can be defined as those data and information, which are collected by the researcher himself or by his men. He can use various methods as interview, mailed questionnaires field observation etc. these data are more reliable as they are collected for specific purpose and required by the study. This report is partially based on primary data. Primary data are collected mainly by questionnaire and interview method.

b) Secondary Data

Secondary data are that type of data that are collected and compiled by some other researchers for their own purpose. Relevant secondary data are also used while preparing this report, but uses of secondary data have their own constraints. As other collects secondary data for their purpose, use of such data should be done with care so that researcher does not get entangled in irrelevant data. The secondary data used are taken from annual reports, Newsletter and bulletins and different websites related with BOK.

3.4 Data Collection Methods

There are various methods of collection of primary and secondary data. The methods that are applied for this study are interview and questionnaire, observation and reviews.

a) Interview

Structured interviews with the Branch manager of branches, MIS manager and other concerned authority were conducted. At first, a structured list of question to be asked during the interviews was formulated. Then they were prioritized according to the importance of the question.

b) Questionnaire

A well structured list of questionnaire is prepared and supplied to all employees in different department of Nepalgunj, Kohalpur and Surkhet branch to collect the primary data.

c) Observation

In this course of preparation of study report, researcher frequently visited to organization to collect the information through observation.

d) Review

This method primarily implies the collection of secondary data, which have been already published. Most of the secondary data have been collected from the published material and website of the organization.

3.5 Data Analysis Techniques

The data collected from secondary as well as primary sources are sorted and only the related data are considered. They are further examined in relation to the objectives. According to their pattern, available data is presented in the flow charts, Data Flow Diagrams (DFD) and Entity Relationship Diagram (ERD).

3.6 Tools Used

Different softwares are used for preparing this research report, without help of these Software tools it would be very difficult to present the research report.

To prepare the research report researcher used following software tools:

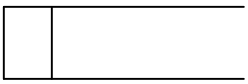
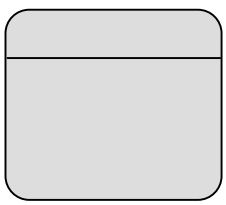
- Analysis Tools: Microsoft Excel 2003
- Case Tools: Microsoft Visio 2000
- Report Writing Tools: Microsoft Word 2003

During the course of analysis, the researcher had to gather enough information. The researcher used DFD to record all the information gathered. DFD is a graphical tool used to describe and analyze the movement of data through a system, manual or automated, including the process, stores of data through a system. The DFD shows the inputs and outputs clearly. The DFD has the basic elements namely source, data store and destination.

The Data Flow Diagram shows the flow of data or information. It can be partitioned into single processes or functions. Data Flow Diagrams can be grouped together or decomposed into multiple processes. There can be physical DFD's that represent the physical files and transactions, or they can be logical DFD's.

DFD of a system is presented by using context level and system level. Researcher has used Gane/Sarson approach to represent the logical flow of the data, which are mentioned below:

DFD Object Symbols

Objects	Gane/Sarson Symbols	Description
External Entity		It is a person or group, which interacts with the system, something outside the system. It is not a user. e.g., Customer, Supplier, Government Agency, Accounting Department, Human Resources System, etc.
Data Flow		It is the directional movement of data to and from External Entities, the process and Data Stores. In the physical model, when it flows into a data store, it means a write, update, delete etc. Flows out of Data Stores mean read, query, display, select types of transaction.
Data Store		It is a repository of information. In the physical model, this represents a file, table, etc. In the logical model, a data store is an object or entity.
Process (Activity, Function)		Depending on the level of the diagram it may represent the whole system as in a Context (level 0) diagram or a business

		area, process (activity), function, etc. in lower levels.

Table 3.1: DFD Object Symbols and Description

Another tool used to present the data is Entity Relationship Diagram (ERD). An ERD is a specialized graphic that illustrates the interrelationships between entities in a database. ER diagrams often use symbols to represent three different types of information. Boxes are commonly used to represent entities. Diamonds are normally used to represent relationships and ovals are used to represent attributes.

ERD Object Symbols

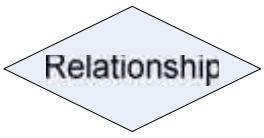
Objects	Symbols	Description
Entity		An entity is an object or concept about which you want to store information.
Attributes		Attributes are the properties or characteristics of an entity.
Key attribute		A key attribute is the unique, distinguishing characteristic of the entity. For example, an employee's social security number might be the employee's key attribute.
Multi-valued attribute		A multi-valued attribute can have more than one value. For example, an employee entity can have multiple skill values.
Relationships		Relationships illustrate how two entities share information in the database structure.

Table 3.2: ERD Object Symbols and Description

CHAPTER IV

SYSTEM ANALYSIS AND DATA PRESENTATION

4.1 A Brief Introduction to Bank of Kathmandu (BOK)

4.1.1 Introduction

The role of commercial banks is extremely important for the development of industries, trade, commerce, agriculture of the country. In fact no nation can develop itself without the development of the bank. Initially, Bank of Kathmandu Ltd. had been established as a joint venture bank of **SIAM Commercial Bank,** Thailand with Nepalese investors in March 1995. Later on, in Sep 14, 1998 based on Management Termination Agreement, **SIAM Commercial Bank** returned back its share of investment on the bank to the board of directors of Bank of Kathmandu Ltd. Now, Bank of Kathmandu Ltd. has become a prominent name in the Nepalese banking sector, solely owned by Nepalese investors.

BOK is committed to delivering quality service to customers, generating good return to shareholders, providing attractive incentives to employees and serving the community through stronger corporate social responsibility endeavor. BOK today has become a landmark in the Nepalese banking sector by being in among the few commercial banks which is entirely managed by Nepalese professionals and owned by the general public.

BOK has 25 branch offices covering all region and development areas of Nepal. It has banking network from capital city Kathmandu to the one of the most remote district of

Nepal-Jumla. The Branch Operations Department is responsible for supervising the 25 branches and 206 service counters operating in Nepal. Through its extensive branch network, BOK has been contributing to Nepal's economic development by providing banking services throughout the country.

BOK aims to facilitate the nation's economy and to become more competitive globally. To achieve these, BOK has been focusing on its set of objectives right from the beginning. To highlight its few objectives:

- To contribute to the sustainable development of the nation by mobilizing domestic savings and channeling them to productive areas.
- To use the latest banking technology to provide better, reliable and efficient services at a reasonable cost.
- To facilitate trade by making financial transactions easier, faster and more reliable through relationships with foreign banks and money transfer agencies.
- To contribute to the overall social development of Nepal.

BOK's IT infrastructure has been designed, to facilitate, internal and customer convenience. Nationwide, all the branches are connected to the central database via Wide Area Network (WAN) powered by Finacle, state-of-the-art banking application software supported by hardware like SUN Fire V880 RISC server, VSAT etc. Internally, BOK relies on Information & Communication Technology (ICT), for a quick, reliable, efficient system. Banking operations are powered by Finacle, which is listed among the top 40 companies that have reshaped the global economy as per the Wired Magazine.

With the aim of providing banking services at the customer's fingertips, BOK has started Internet Banking and Alert Service. In Internet Banking, BOK is provideing Consumer e-banking (Core, Retail and Bill Payment) as well as Corporate e-banking facilities (Trade financing and web based Cash Management). (www.bok.com.np)

BOK at a Glance (as at Feb 2009)

Number of Branches	25
Regions covered	5
Service counters	6
Total Employees	484
Service outlets	250
Districts Covered	51

Table 4.1: BOK at a Glance (www.bok.com.np)

4.1.2 Mission/Vision

BOK makes a clear vision to become a significant contributor to the economic development of Nepal by distinguishing the bank as an efficient, competitive, safe and top quality financial institution. At the same time, it aims to offer financial services and becoming the "Bank of Choice" by dedicating to the progress and growth of the institution for the community, customers, employees, supervisors and stockholders by promoting economic growth and becoming a caring corporate citizen. Moreover, it

believes in providing excellent customer services by offering personalized quality products and services including modern technologies of banking that adds value to customer service. BOK is more into enhancing shareholders value by following strict risk control mechanisms and providing challenging career and learning opportunities for employee. (www.bok.com.np)

Figure 4.1: BOK Network Map (www.bok.com.np)

4.1.3 Organization Structure

The head office of the bank is located at Kamal Pokhari, Kathmandu. The Board of Directors is responsible for policy making & guidance to the management. Shareholders nominate all board members including the Chairman. Management Committee oversees the different departments at head office on a day-to-day basis. There is Audit Committee to strengthen the financial controls and integrity of the

Bank. The executive power is solely vested to the Managing Director (MD). The Chief Operating Officer (COO) and Chief Business Officer (CBO) are responsible to the operation sector of the BOK and to the business sector respectively. The Bank has 20 departments to tackle different affairs regarding over all banking quires.

Even though BOK does not have the largest branch network in Nepal, its extensive branches network has covered all development regions of Nepal. BOK, most probably is the first bank in the world to offer ATM service at the highest mountainous area as it has ATM outlet in Namchebazar, Solukhumbu. Covering 51 districts it has 25 branches, 6 service counters and 250 service outlets covering mountainous, hilly and tarai regions. The Branch Operations Department is responsible for supervising the 25 branches and 6 service counters operating in Nepal. The Internal Audit & Compliance Department is directly monitored by Audit Committee.

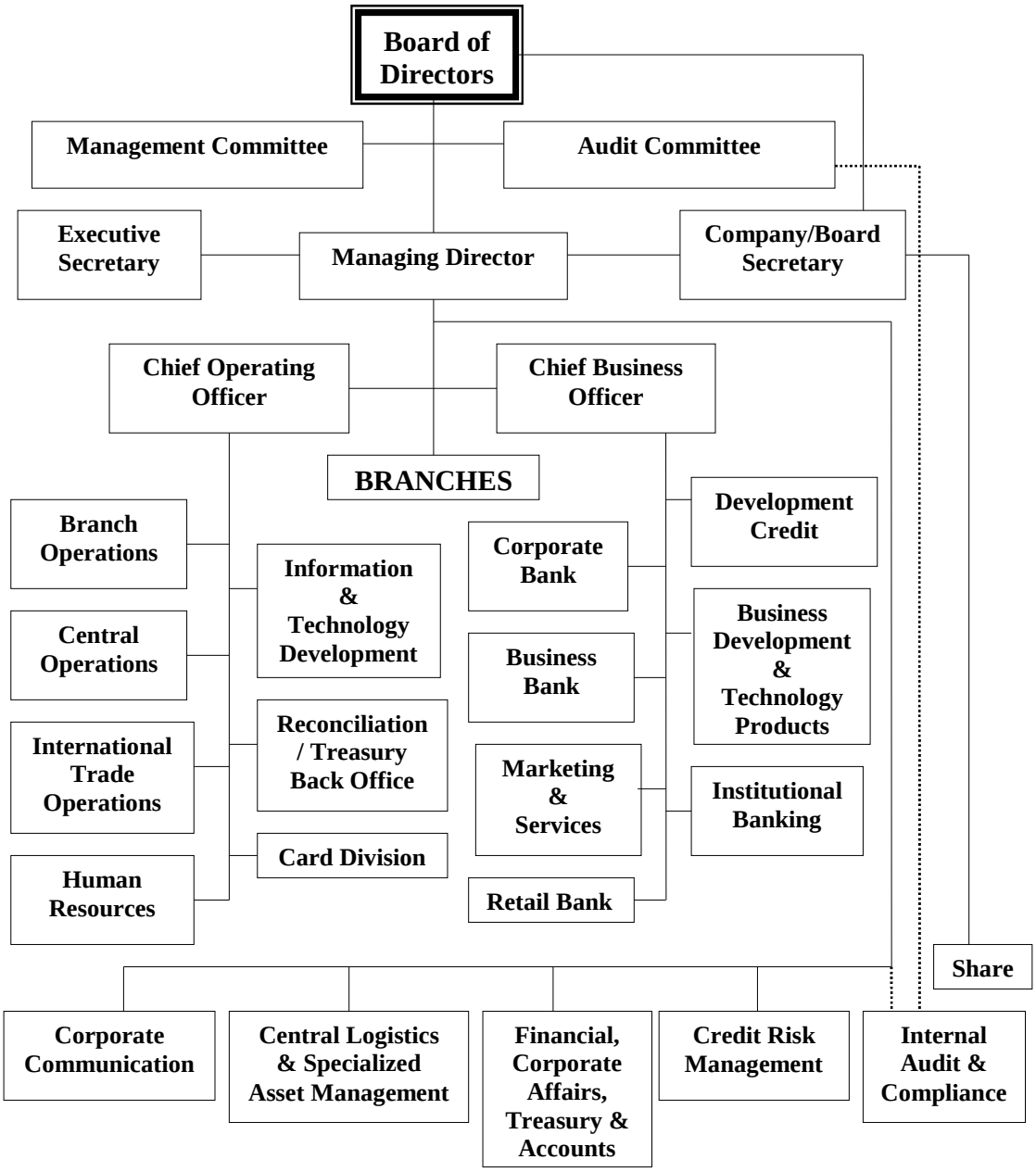


Figure 4.2: Organizational Chart of BOK (www.bok.com.np)

As shown in diagram, issues related to shares and shareholders are directly monitored by Company/Board Secretary. Since BOK operates its all branches in online system, Information & Technology Development department is another important aspect of the bank. It functions in close coordination with Card Division in day to day activities. The bank has separate and fully functional department of IT Development as like other department. And under IT Development department, different units are established to perform different task more efficiently. IT Development department has

four units working under the IT Development manager. Inside overview and function of each unit is presented bellow.

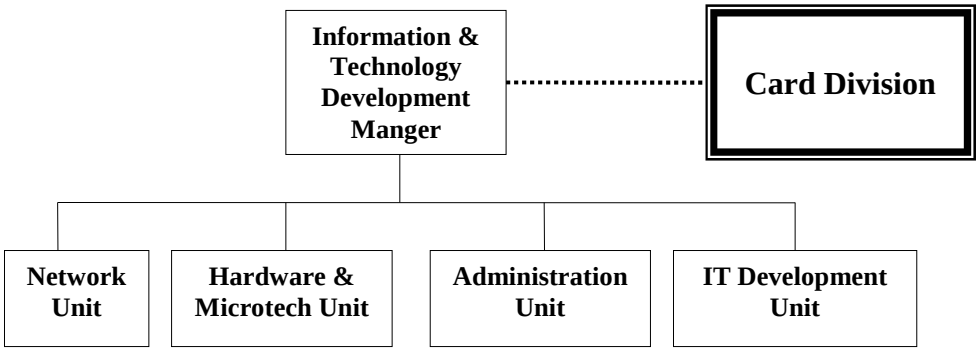


Figure 4.3: Organizational Chart of IT Development Department

Currently there are four units under IT Development department and each unit has different responsibility and task to perform. Network unit's main responsibility is to maintaining network in the bank in national level as well as in the branch. Similarly, Hardware & Microtech unit is responsible for providing all hardware equipment to all branches and regular maintenance and updating data of existing hardware condition in the bank.

Administration unit control all administrative work of other units and whole IT Development department. IT development unit's main function is to carry out research on MIS in the bank for continuous development. And the card Division handles the entire task related with electronic card transaction and money transfer service with swift.

4.1.4 Products and Services

BOK providing various kinds of commercial banking products and services, and many new services like mobile banking and internet banking are in the way of

implementation. Currently, BOK is providing these sorts of product and facilities to the customer.

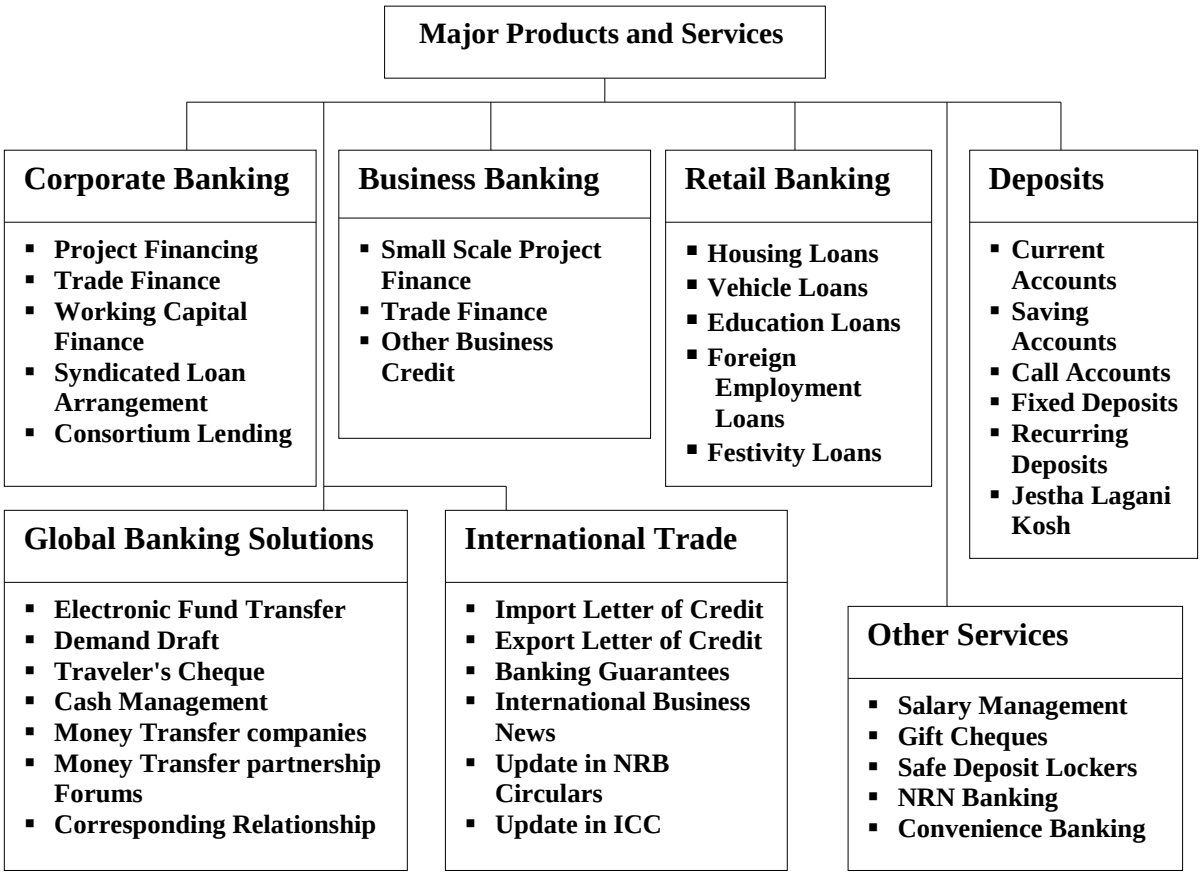


Figure 4.4: Major services and Products Offered by BOK (www.bok.com.np)

4.1.5 BOK Branch Network (As at 4 Feb 2009)

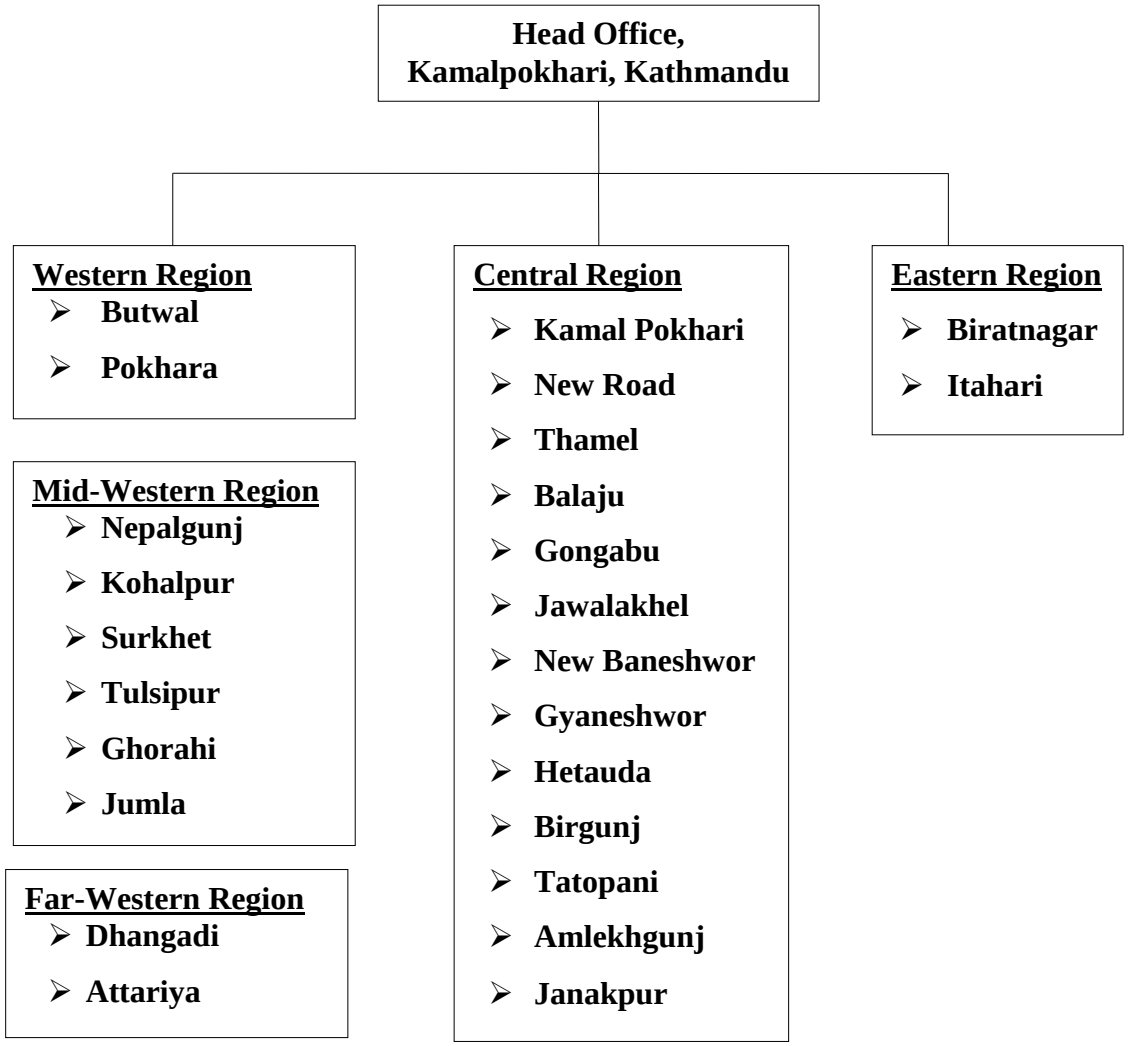


Figure 4.5: BOK Branch Network (www.bok.com.np)

4.1.6 BOK's Business and International Network

- **BOK Money Transfer:** BOK is the bank which has developed its software which has been termed as BOK Money Transfer, internally and managed to make largest network in Internal Remittance. It is operating fast money transfer through its safety Internet Platform in coordination with local financial institution or Agency of 51 districts all over the Nepal. Customer can transfer or receive money safely from 250

service outlets by BOK Money Transfer which is getting more popularity in recent years. The facility of Money Transfer has reduced the necessity of introducing more branches and increased the amount of cash collection with lesser effort.

- **International Payment:** Facility of getting loan on abroad employment from BOK, trend of abroad employment, abroad studies and migration of population in recent years has dramatically changed the scenario in transaction of remittance. In this way, either to get fund from abroad or to transfer there it has been more easier now to play on transaction of money by the remittance agreements of BOK with leading correspondent banks of world and leading remittance agencies like Money Gram, Xpress Money Service, Placid Express, Nepal Remit, Al-Moosa, Al-Fardan Money Exchange, Money Exchange SA(Spain), Alu-Kkas, EZ Remit, Janata Express, National Exchange, Wallstreet Money Exchange and Instant Cash. Similarly, based on payment agreement performed with the banks of neighbor countries, BOK is being able to make business network in boarder and commercial cities of India and China. In the other hand Nepalese Export/Import Industry is being benefited by using easy payment relationships with their clients as the mode of bank payment.

- **International Relationship:** BOK directly has the BKE (Bi-Lateral Key Exchange) relationship with 205 international banks through SWIFT for various payments. Recently, it has signed the agreement of GTFP (Global Trade Finance Program) relationship incorporated by IFC (International Finance Corporation) of Global Bank Group with the objective of helping in international trade. In result of which, bank is getting bond amounted to 2 million dollar, bank guarantee and facility of using its equipment for global transaction. Now, it has been easy for BOK to provide service to its customer in the most of the world's leading countries for international trade. BOK

has joined hands to SEDF (South-Asia Enterprise Development Facility) as a consultant to increase in the efficiency of small and medium scale traders and to increasing the aspects of loan investment on those sectors. SEDF is another project of Global Bank which aims to invest on small and medium scale industries of South-Asia. Moreover, IFC has agreed not only to provide technical support to BOK but also to invest in its shares. (14th Annual Report, fiscal yr 07/08)

4.1.7 BOK ATM Card and Its Features

Bank of Kathmandu Ltd. in order to facilitate financial transactions introduces BOK Visa Debit Card and BOK Debit Card in association with SCT Technologies Pvt. Ltd. BOK Visa Debit Card and BOK Debit Card enable to make purchases of goods and services at various merchant locations as well as cash withdrawal from ATMs with access to the bank account.

Account holder can have easy access to the nominated account maintained with Bank of Kathmandu Ltd. from any ATM location that spreads to more than 50 ATM locations. Further BOK card holder can make purchases of goods and services from more than 200 merchant locations through Point-of-Sale (POS) terminals. BOK Visa Debit Card and BOK Debit Cards are accepted at all ATMs of BOK and ATMs associated to SCT Network and merchant locations connected with Point of Sales (POS) terminals to the bank or merchants that display/accept SCT Cards. Customer can withdraw or make payments up to NPR 200,000 per day, not exceeding the balance maintained in the nominated account using BOK ATM card.

Features of the BOK Debit Card

• Two in one - Debit and ATM Card

• Secured transaction through PIN (Numeric Password) based plastic cards

• 24-Hour ATM Transactions (from selected payment locations)

• Easy, Convenient and Fast Cash

• Receipt Print on withdrawal

• Balance Enquiry with print

• Mini Statement Printing

• Can be used in all merchant locations displaying SCT and Visa logo.

Bank of Kathmandu Limited also offers fast and reliable money transfer services via SWIFT. SWIFT stands for Society for Worldwide Inter-bank Financial Telecommunication; the secured network used for inter-bank financial transaction and communications worldwide. Account holder can receive remittances and be credited in Bank account virtually from anywhere around the globe. Similarly, account holder can transfer money abroad through SWIFT transfer even without having any bank account with the Bank. (www.bok.com.np)

4.1.8 Glimpse of Corporate Social Responsibility Performed by BOK

As a true corporate citizen BOK has contributed towards the betterment of the society in every way possible. With endless possibilities, BOK aims at doing the most, in diverse avenues. Be it organizing HIV/AIDS walkathon, blood donation program or keeping environment clean, BOK constantly endeavors to reach out to those that need most support.

- BOK has been supporting the deprived students of Help to the Helpless Council (DHARAN) through its educational support program.

- BOK supported a scholarship program organized by Development and Equity for women Empowerment, Nepal for underprivileged students.

- BOK with a mission to support Bal Mandir Orphanage Project, Naxal, supported 2nd Annual Dinner Fundraiser at 1905, Kantipath organized by Nepal Children's Organization.

- BOK made an effort to help schools in remote areas (Far Western Region, Nepal) in order to enhance the quality education in those areas by supporting a pilot Adopt-A-School program launched by Save the Children Kathmandu.

- As a mission to create awareness and support for the treatment and rehabilitation of disabled children, BOK supported Hospital and Rehabilitation Centre for Disabled Children (HRDC) to host the 3rd CMS Abilities Cup 2008.

- BOK made an effort to create an opportunity for the disabled children to be self employed by providing them with computer trainings by supporting Skill Development and Rehabilitation Centre for Disables-Nepal.

- BOK supported Community Based Rehabilitation (CBR), Biratnagar organize its orthopedic workshop to support more children and adult with disabilities in Eastern Region.

- BOK distributed clothes to the flood victims of Banke Districts through "Hridaya Group"-Social Youth Organization.

- As a part of its commitment to be socially responsible, BOK organized its 2nd of the Knowledge Series one day workshop "Seize the future-A Visionary

Leadership Workshop". The proceeds from the workshop plus an addition of two hundred and fifty thousand Rupees were contributed to Hospital and Rehabilitation Centre for Disabled Children (HRDC) in order to support the disabled children of Nepal. Furthermore, the workshop was organized with an aim to create a perspective for the participant on both internal and external challenges that he/she is facing in leading the organization and to help them develop a plan of action to successfully tackle the challenges.

- BOK is a committed supporter of TEWA in its endeavor in building equitable, just and inclusive society (with special focus on women) by increasing self reliance of Nepalese by reducing dependency on foreign donors.

- BOK has been supporting TEWA to organize many fund raising events in the past years. TEWA with support of BOK recently organized 'Deep Prajwalan' a fund raising event in support of rural Nepalese women's groups for promoting equitable justice and peace in the society.

- To mark the world HIV/AIDS day, Bank of Kathmandu decided to do something different this time and donated full set of clothes and foodstuffs to 33 HIV positive children of Keta Keti Ashram, Bansbari, and Kathmandu.

- BOK joined hands with Traffic Police Post, Gaushala with an attempt to convey the Traffic Social Messages by helping place banners in public vehicles (with traffic messages) in order to create social awareness among the people regarding the traffic rules.

- BOK joined hands with Naxal Yuva Mandal in order to restore Naag Pokhari with its mission towards CSR focusing environmental activities. (www.bok.com.np)

4.2 System Analysis

4.2.1 An Overview of Pumori Plus

Pumori Plus is an on-line multi-user; multi-currency integrated banking system of international standard developed by Mercantile Office Systems, Nepal. It integrates all functions of front office and back office as one package. The system runs on Windows NT network and provides adequate security features for keeping smooth operation of the system. It also takes care of data integrity with its internal design. Pumori Plus encompasses a variety of features and can easily take care of a small financial institute to a large scale banks with international standard.

The actual development started in 1987 and the latest release is Pumori Plus *III* (version 2). Pumori Plus has now established itself as the most popular banking software in Nepal with a clientele of more than 40 commercial banks and finance companies with hundreds of installations all over Nepal. Pumori Plus uses latest technology prevailing in the market. The system is totally object-oriented, taking maximum advantage of Relational Database Management System (MS SQL Server).

Figure 4.6: Login Window of Pumori Plus *III*

In current time Pumori, the major made-in-Nepal banking software developed by Mercantile, is facing tough competition from foreign softwares such as Globus and Flexcube. Though the system is satisfactory and many Nepalese banking institutions using it but the main problem of mercantile is after sales service, which is often comes in media. The banks, using the Pumori software, often complaint about lack of maintenance support from the supplier.

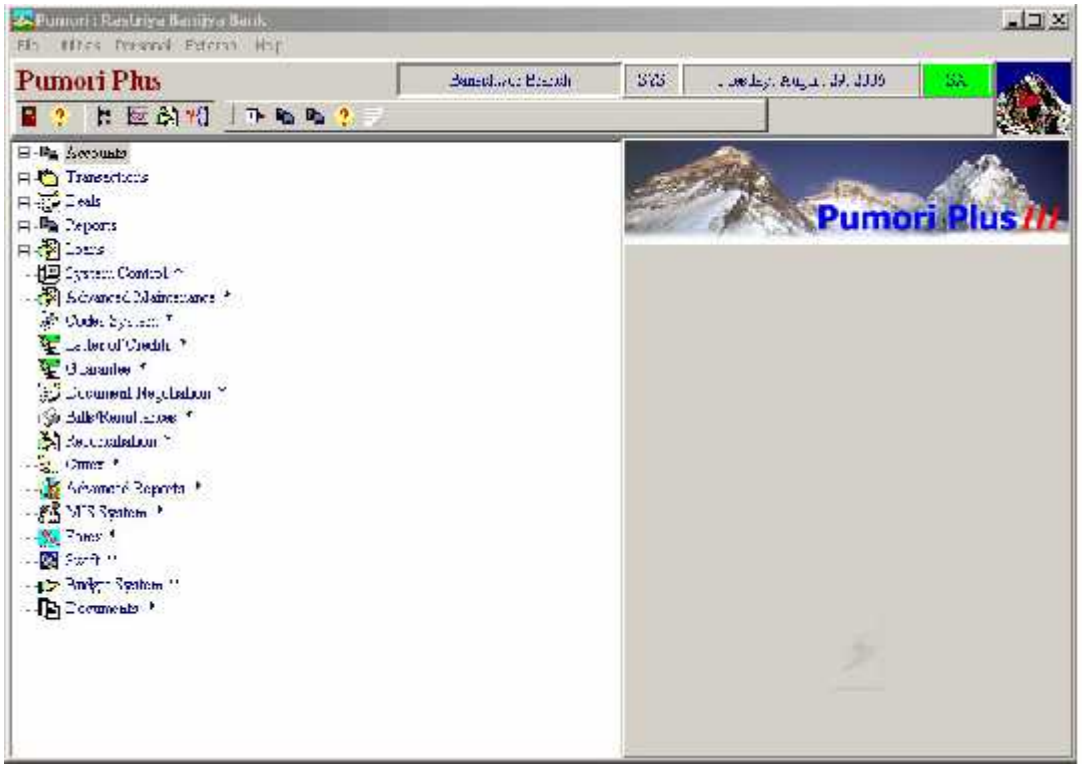


Figure 4.7: Outlook of the Pumori Plus *III*

4.2.2 Networking Structure of BOK

a) Local Area Network (LAN)

A local area network is usually privately owned and links the devices in a single office, building or campus of up to a few kilometers in size. Depending up on the needs of an organization and the type of technology used, a LAN can be as simple as two PCs and printer in someone's whole office or it can extend throughout a company and include voice, sound, and video peripherals. A typical network diagram of Nepalgunj branch is presented here:

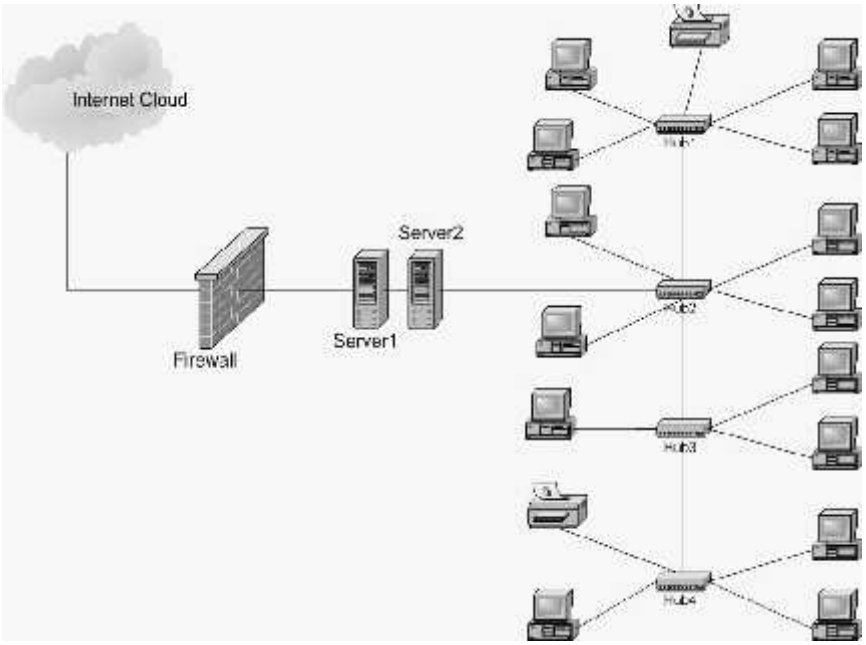


Figure 4.8: Local Area Network (LAN) of Nepalgunj Branch

There are five different logical Local Area Networks (LAN) at the central office. These network areas are protected by a firewall. Firewall is a device that limits access between networks in other words creates barrier between networks. It provides necessary security for data access and also protects resources.

b) Wide Area Network (WAN)

Computer networks which connect two or more local area networks and span a large geographical area are know as Wide Area Network (WAN). The available media for WAN connectivity in Nepal are different type leased lines, radio link, fiber optics, ISDN and VSAT.

The BOK branch offices are situated in different geographical regions of Nepal. Nationwide, all the branches are connected to the central database via Wide Area Network (WAN) powered by Finacle, state-of-the-art banking application software supported by hardware like SUN Fire V880 RISC server, VSAT etc. Internally, BOK relies on Information & Communication Technology (ICT), for a quick, reliable, efficient system.

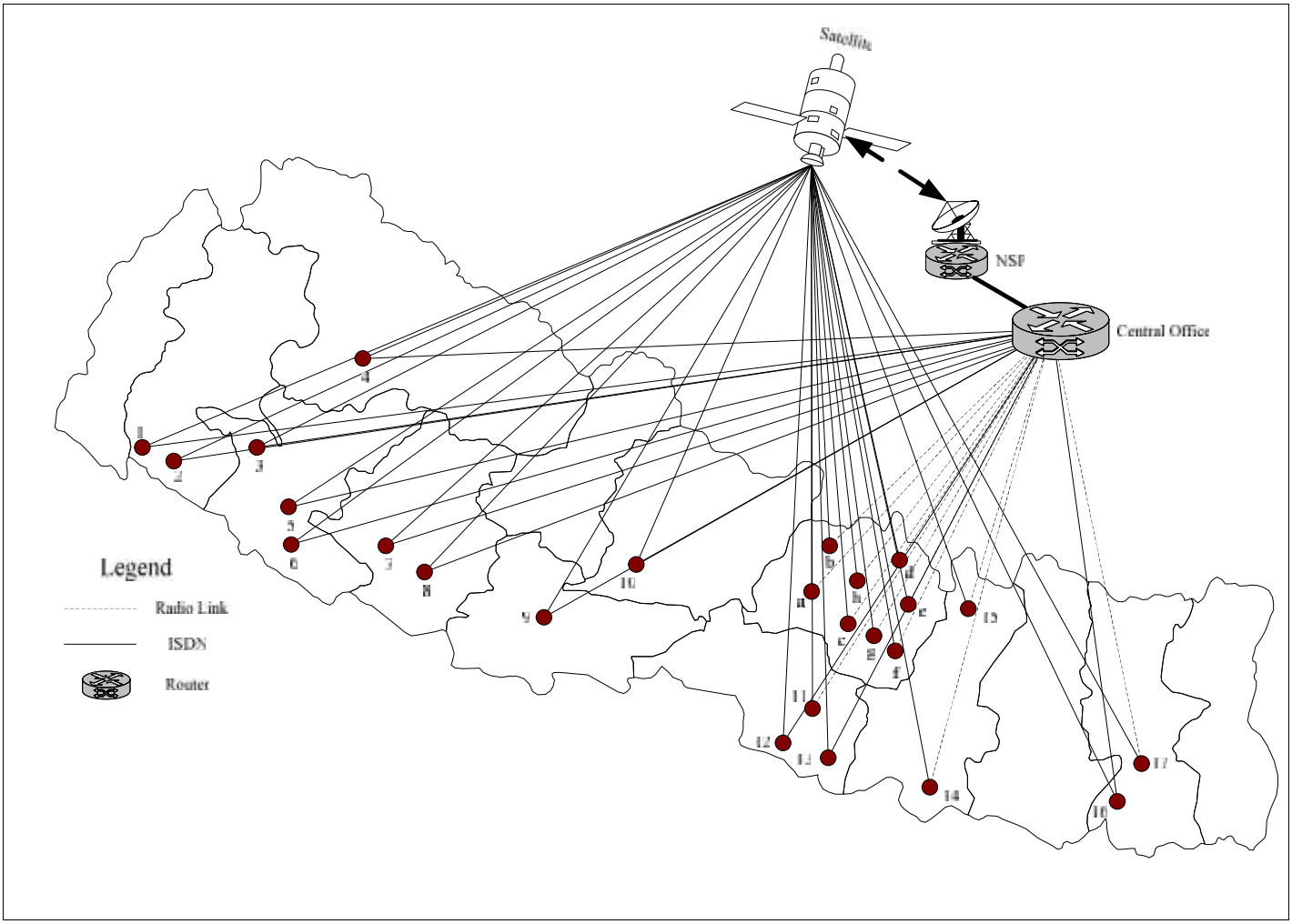


Figure 4.9: Wide Area Network of BOK

1. Dhangadhi
2. Attariya
3. Surkhet
4. Jumla
5. Kohalpur
6. Nepalgunj
7. Tulsipur
8. Ghorahi
9. Butwal
10. Pokhara
11. Hetauda
12. Amlekhgunj
13. Birgunj
14. Janakpur
15. Tatopani
16. Biratnagar
17. Itahari

i. Kamalpokhari
ii. Newroad
iii. Thamel
iv. Balaju
v. Gongabu
vi. Jawalakhel
vii. New Baneshwor
viii. Gyaneshwor

4.3 Analysis of Existing System of BOK

In the flat world, the financial industry has stepped up its compliance regulations dramatically. So have individual governments. The cost of failure is very high. Leaders in the field today have realized that it is impossible to effectively tackle the task of managing risk and compliance in the flat world without replacing inflexible and obsolete technology with future-ready new generation solutions. They understand that doing so enables them to maximize the opportunities of globalization while minimizing the associated risks. Finacle from Infosys helps to win in the flat world by maximizing unlimited opportunities for growth, while minimizing the risks that come with large scale business transformation.

Finacle is the universal banking solution of choice of Tier I and Tier II banks and large regional banks across the world. Leading universal, retail and corporate banks worldwide leverage the power of Finacle to transform their business. Finacle customers are spread across 62 countries across the world and include names such as ABN Amro Bank, ANZ Bank, Arab National Bank, BBVA, Credit Suisse, DBS Bank, Emirates Bank, ICICI Bank, Mizuho Financial Group, and Zurich Financial Services.

Finacle is a Universal Banking Solution as a core technology platform, as it offers great flexibility, seamless real time integration and powerful Straight through Processing (STP) capabilities leading to greater differentiation in the marketplace and efficiency in the operations. Finacle is a solution which is seeing great demand and acceptance from the market place. (www.infosys.com)

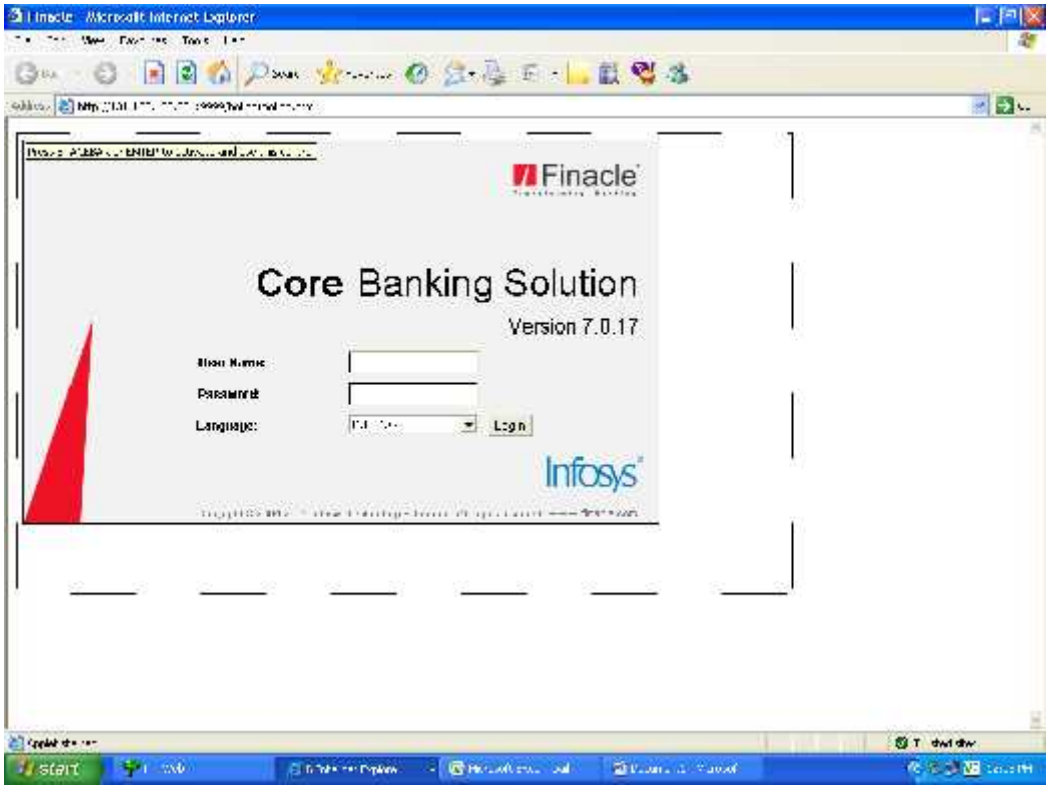


Figure 4.10: Login Window of Finacle

Above picture is the login window of Finacle. To enter in to the system one must have user id and password and id and password are provided to bank staff only therefore, other personal can not enter in to the system. There is separate security policy set by the bank and there are also some rules and regulation set by the bank regarding password to make the system inaccessible to unauthorized person. User id is given to employee who use the system regularly and they self set the password for easy access. User id is different for each and every employee in the bank but same password can be set by the different employee. The system works on windows environment and it does not provide access to user without valid user id and password.

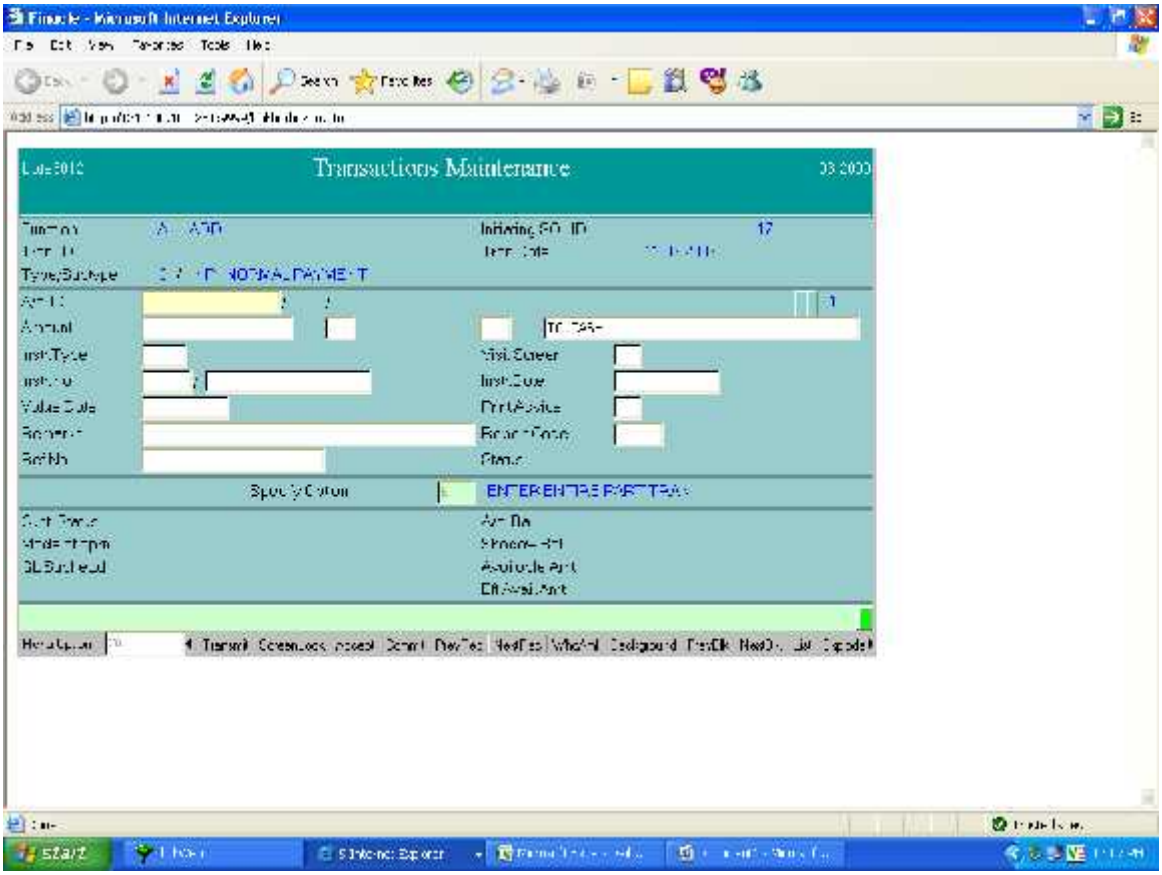


Figure 4.11: Transactions Maintenance window of the Finacle

Finacle core banking solution is a comprehensive, integrated yet modular business solution that effectively addresses the strategic and day-to-day challenges faced by banks. It is highly parameterizable providing that much-needed flexibility to adapt to a dynamic environment.

The solution has an integrated CRM module enabling banks to offer a rich and differentiated value proposition to customers. The layered Service Oriented Architecture (SOA), STP capabilities, web-enabled technology and 24 X 7 operations ensure multi-channel, multi-country and multi-currency implementations. The functionality-rich modules in the solution provide banks with a varied palette of features to continuously innovate on their product and service offerings. With Finacle

core banking solution, banks can meet the challenges of managing change, competition, compliance and customer demands effectively.

Finacle offers wide range of services and solutions and consumer e-banking is one of them. Consumer e-banking solution is a proven Internet banking and mobile banking solution for retail banking customers. Built on new-generation technology, it provides a single unified view of the customer's many relationships with the bank. The solution provides high flexibility for customization and robust security features. This solution can be interfaced with any core banking solution directly or through an industry standard middleware. It provides banking customers real time access to their relationships with the bank such as account inquiries, fund transfers, credit cards, mutual funds payments and remittances. It enables them to make payments to individuals or institutions, and other general payments online. It also has a powerful Electronic Bill Presentment and Payment (EBPP) module, designed to help customers make their utility bill payments. In addition, the powerful Finacle alerts solution provides two-way multi-channel (SMS, WAP, e-mail, fax and voice) alerts.

Finacle corporate e-banking is a comprehensive, corporate and small business banking solution providing a single unified view of corporate banking relationships across asset and liability products, limits, trade finance and cash management. It is designed to support multiple channels including the Internet and mobile, and can be interfaced with disparate host systems and third-party applications. The solution is built on new-generation industry standard technologies J2EE and .NET. This empowers banks to provide their corporate customers anytime anywhere access to real-time consolidated information. It also offers banks the flexibility to go to market with an innovative product and service offerings portfolio. Finacle

corporate e-banking solution is modular and enables banks to hand-pick from its comprehensive set of features. Additionally, the infrastructure services layer of the application provides a framework that aids in deploying new modules rapidly. The solution is multi-currency enabled and offers multilingual support.

Finacle treasury solution is an integrated yet modular front, middle and back office solution built on best-of-breed open technology platforms, providing high scalability, flexibility and STP capability. The treasury solution enables reduction in costs, decrease in time-to-market of products and services, while enhancing process efficiency.

The Finacle treasury solution supports a wide range of financial products and their derivatives in foreign exchange, money markets and securities. It also provides full back office processing capabilities, including General Ledger, and has extensive middle office features such as limits, risk and liquidity management.

Finacle mobile banking solution empowers retail and corporate banking customers with access to banking services through SMS and GPRS/WAP-enabled handsets, leveraging a single platform. It offers both mobile commerce (m-commerce) and mobile payments within the DNA of mobile banking, with built-in support for merchant-initiated payments and reversals, in addition to customer-initiated payments and reversals. Leveraging recent technological advances in the mobility space, the mobile banking solution empowers banks with the means to innovate by easily deploying new services, with improved time to market. The end user experience thus created is richer, secure and truly convenient.
Finacle mobile banking solution functions in tandem with disparate host systems, core banking solutions, payment networks and third-party applications. The solution is

interfaced with Infosys MConnect, the indigenously developed middleware, which orchestrates mobile transactions between users' devices and the Finacle universal banking solution. Infosys MConnect handles the multiplicity of form factors and access mechanisms on multiple devices to provide a context-adaptable view to the transaction server. This presents banks with a powerful channel to service customer segments ranging from the mass affluent to the under-banked or unbanked, surmounting the challenge posed by the diversity of mobile devices. The solution supports synchronization of customers' own data on their mobiles without re-downloading the application for downloadable client-based mobility. It empowers banks to capitalize on their existing Internet transaction and support capabilities to extend it to the mobile world, in practically real time. This ushers in the advantages of reduced integration by leveraging common interface messages, maintenance and deployment costs. (www.infosys.com)

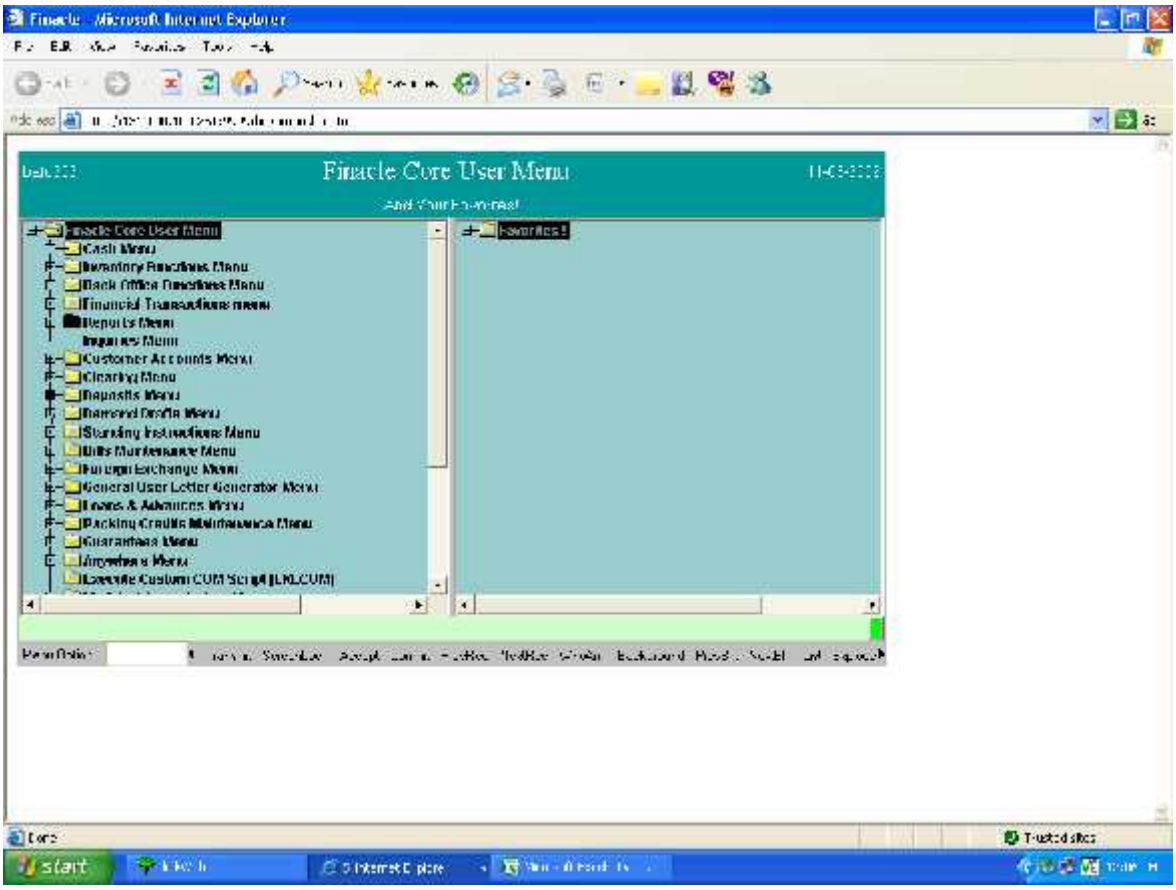


Figure 4.12: Outlook of the Finacle

Although the Finacle has many features and it may provides the wide range of facilities to the bank, the bank is currently using limited features only. For this research purpose only the overview of the system and data flow in the system are analyzed and presented here. There are mainly five sections that is continuously link with the system. Other sections are not directly link with the system. Loan section, Reporting section, remittance section, cash section and account opening section are those five sections which uses the system most. Overview of data flow in the system presented here in context level diagram and zero level diagram.

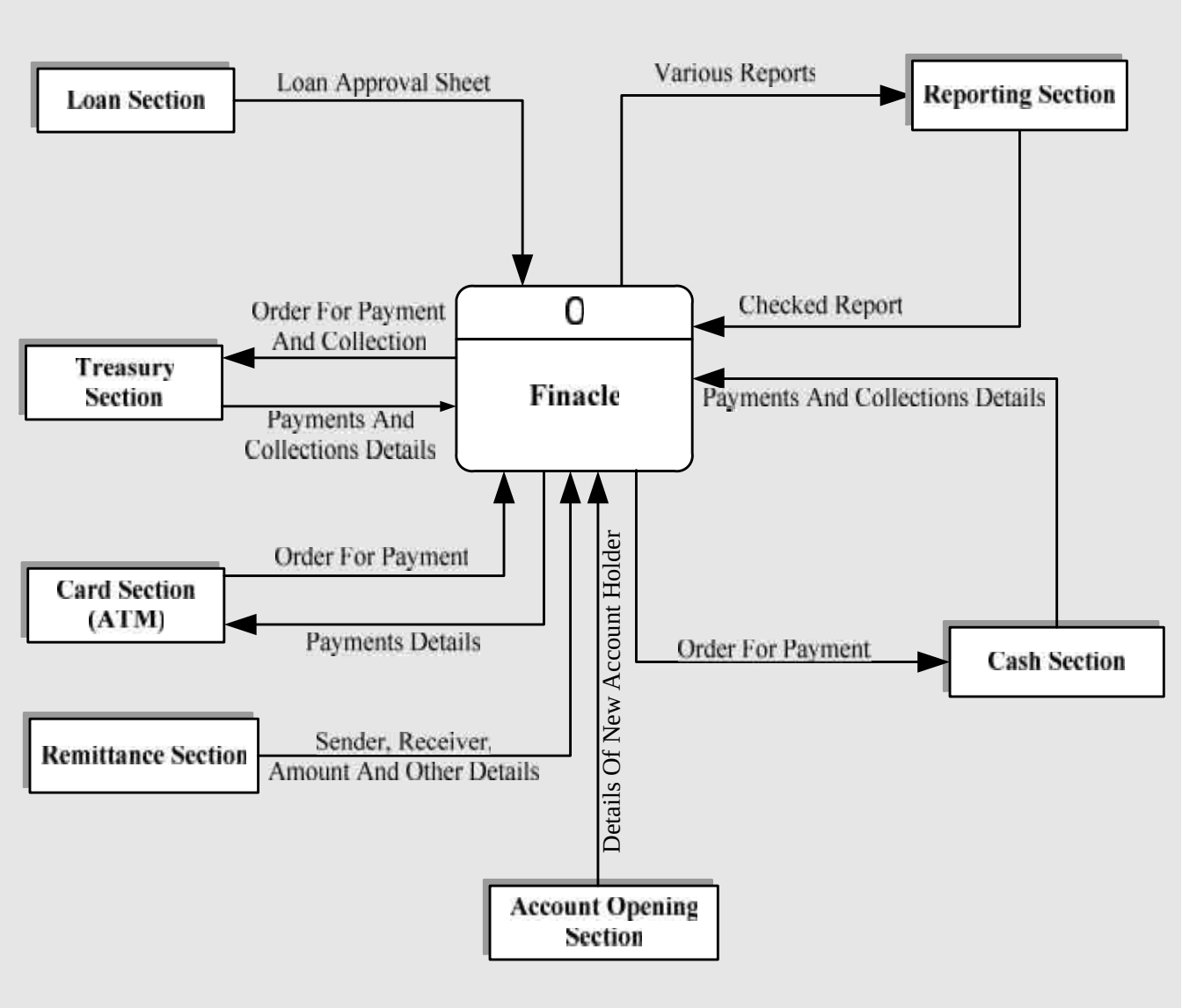


Figure 4.13: Context Level Diagram of 'Finacle'

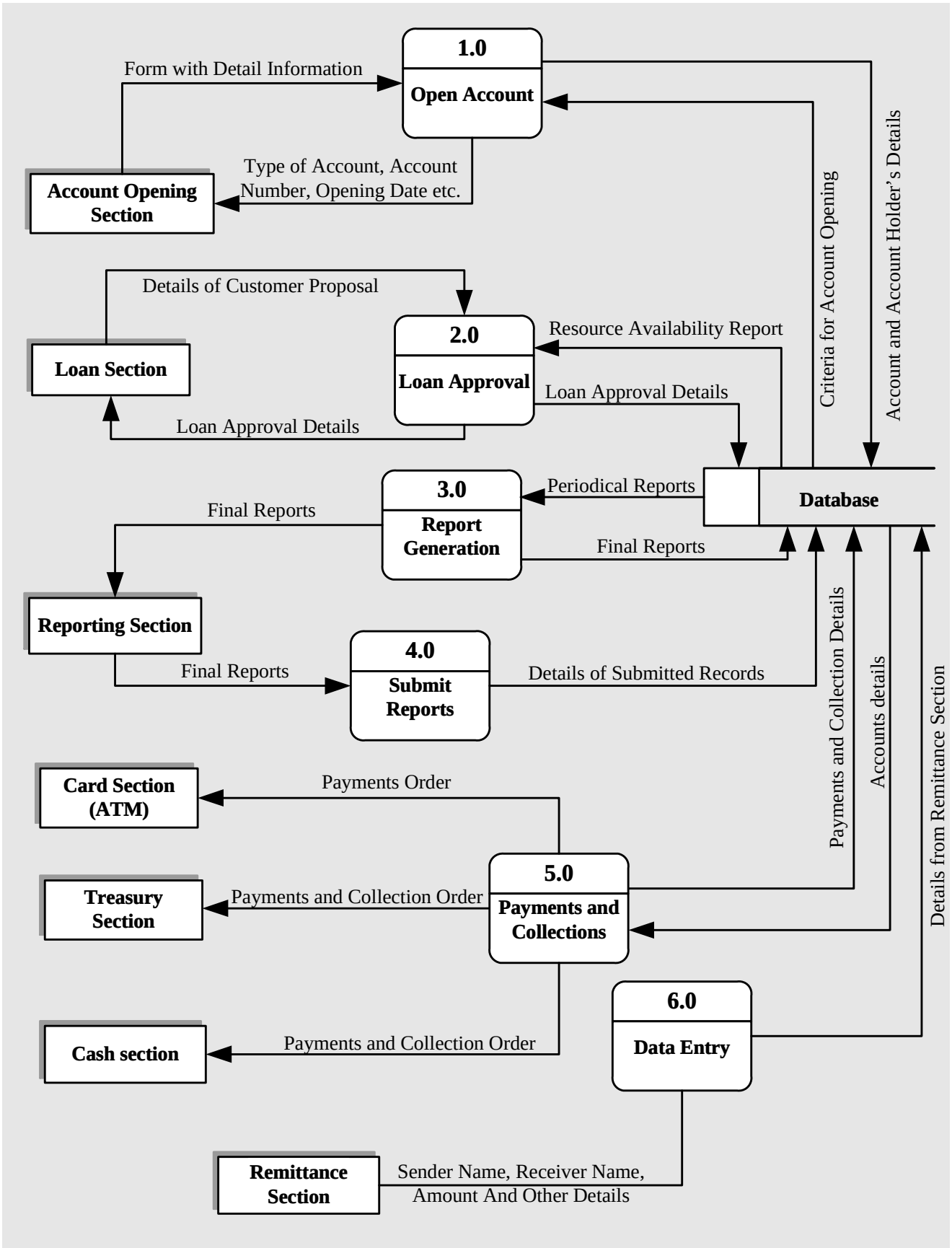


Figure 4.14: Zero Level Diagram of 'Finacle'

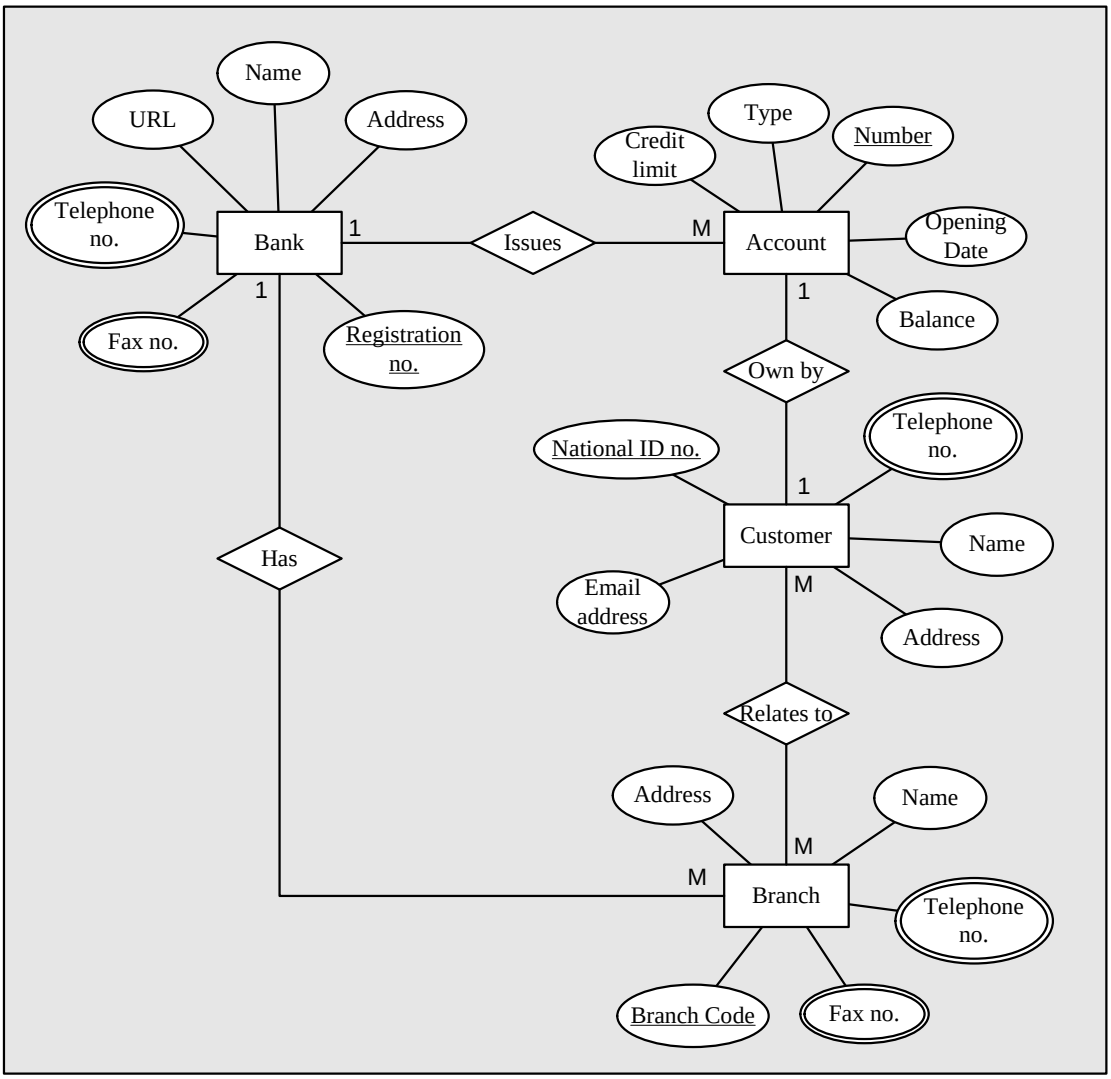


Figure 4.15: A Simple ERD of Banking Environment

The figure shows the simple ER diagram of banking environment. Current information system of the BOK also based on similar relation as shown in the diagram. The diagram consists of mainly four entities like Bank, Account, Customer and Branch. The description of entities, attributes and relationship are presented bellow:

Entity descriptions

Bank: Contains information of bank, which is using the system

Account: Customer has to open account to start transaction with the bank. It contains all details of account.

Customer: Contains information about the customer.

Branch: Contain information about branch.

Attribute descriptions / Data definition

Bank

S.No	Data Element	Data type	Descriptions
1	Name	Character	Full name of the bank
2	Address	Character	Full mailing address the bank
3	Telephone No.	Number	Telephone numbers of the bank
5	Fax No.	Number	Fax numbers of the bank
6	Registration No.	Number	Registration Number of the bank
7	URL	Character	Internet address of the bank

Table 4.2: Data Definition of Bank

Account

S.No.	Data Element	Data type	Description
1	Type	Character	Type of account
2	Number	Character	Unique account number
3	Opening Date	Number	Opening date of account
4	Credit Limit	Character	Credit limit or credit balance of account
5	Photo	OLE	Photo of the account holder
6	Signature	OLE	Signature of the account holder

Table 4.3: Data Definition of Account

Customer

S.No.	Data Element	Data type	Description
1	National ID No.	Number	National ID number
2	Name	Character	Full name of the customer
3	Address	Character	Full address of the customer

4	Email address	Character	Electronic mailing address of the customer
5	Telephone No.	Number	Contact number of the customer

Table 4.4: Data Definition of Customer

Branch

S.No.	Data Element	Data type	Description
1	Branch code	Number	Code of the branch
2	Name	Character	Full branch name
3	Address	Character	Full mailing address of the branch
4	Telephone Nos.	Number	Telephone number of the branch
5	Fax No.	Number	Fax number of the branch

Table 4.5: Data Definition of Branch

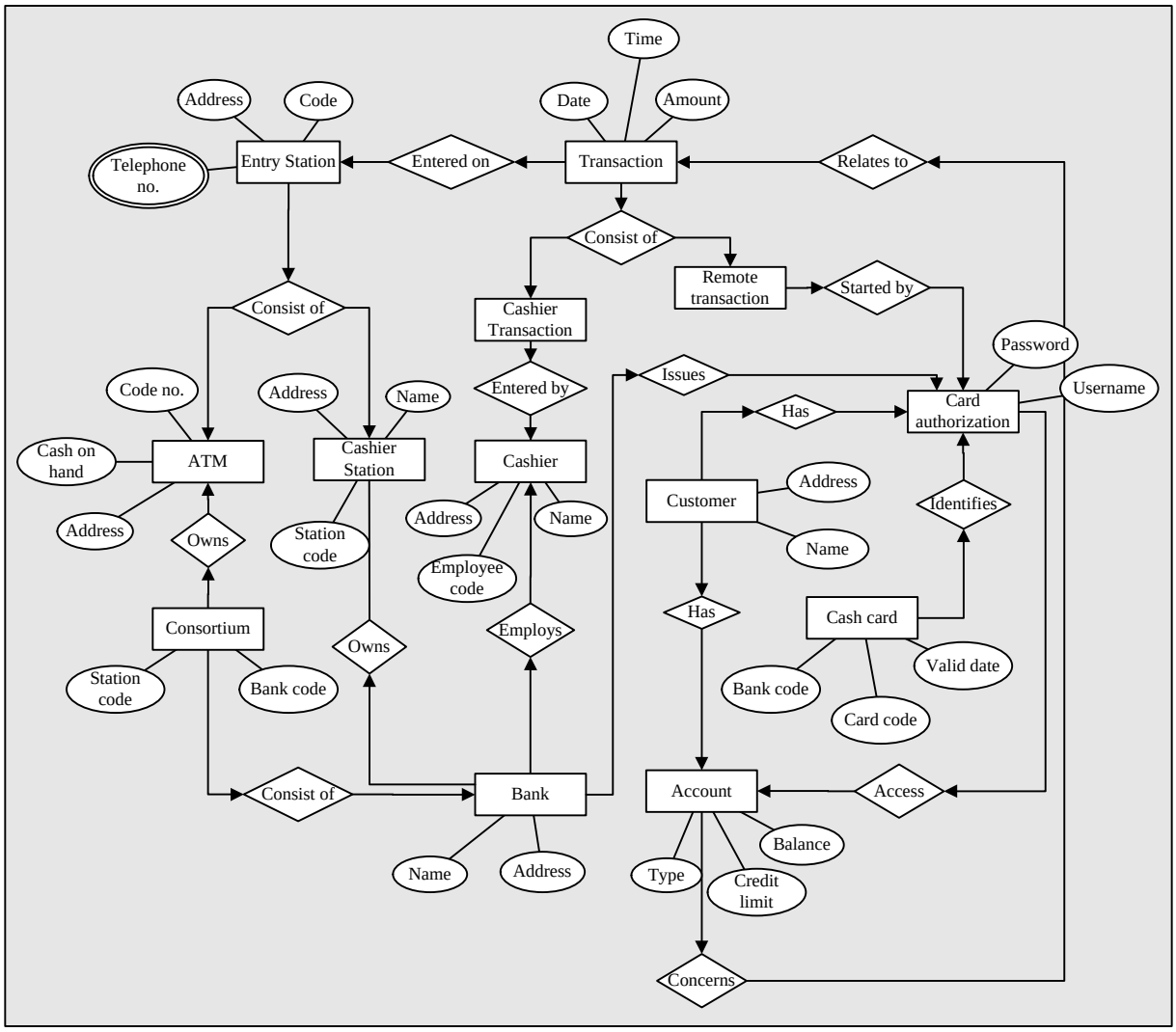


Figure 4.16: Relationship Diagram of Banking Transaction

4.4 Staff Opinion Survey Data Analysis

The main source of data for this research study is primary data. Questionnaire method is used for data collection from different individuals. The respondents are all the bank staff of Nepalgunj, Kohalpur and Surkhet branch. The set of questionnaire and its multiple choices of option are given in the Appendix I at the end of this research study. 25 staffs from mentioned three branches are taken as respondents. Researcher provided a set of questionnaire to all the staff and they help to fill up the questionnaire.

I. Respondent Distribution by Management Level

25 employees working on Nepalgunj, Kohalpur and Surkhet Branch are taken as respondent. There are 4 employees working on top level management, 6 employees working on middle level management and 15 employees working on lower level management.

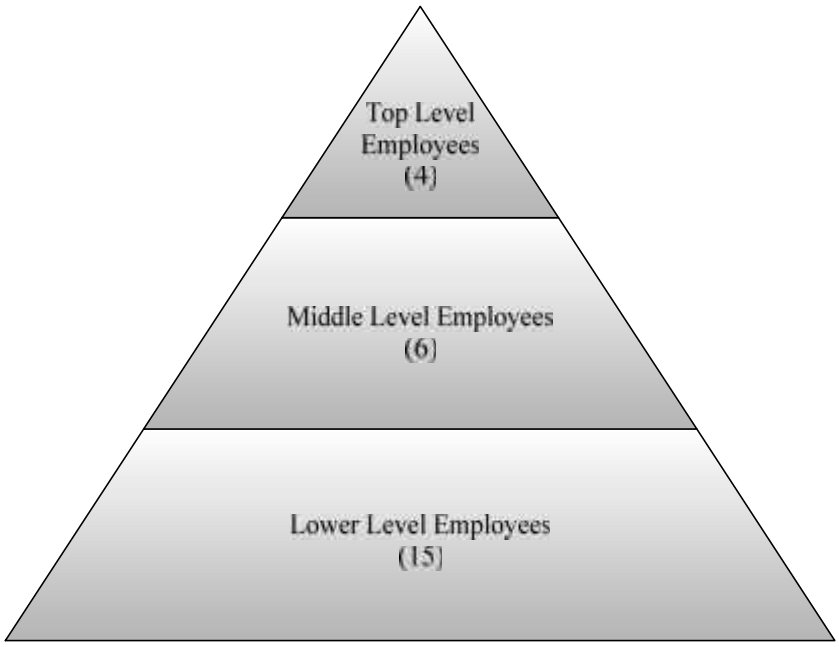


Figure 4.17: Distribution of Respondents by Management Level

II. Understanding of MIS among the Staff

Option Details	No. of Respondents
Good understanding	8
Average understanding	12
Low understanding	5

No understanding	0

Table 4.6: Understanding of MIS among the Staff

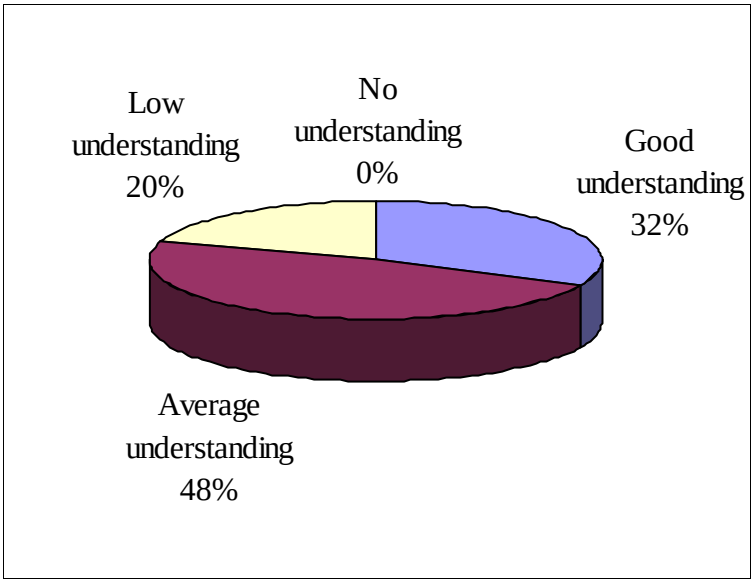


Figure 4.18: Understanding of MIS among the Staff

From the above table and pie chart it can be observed that understanding of MIS is varied. Only 32% staff responded that they had a good understanding of MIS while, 48% staff had average understanding. 20% staff had low understanding and no staff who don't understand of MIS.

III. Access to the Computer in the Working Activities

The result shows that top level employee have most access to the computer in regular basis where as middle level and low level employee have use the computer more rarely.

Level	Regularly	Often	Rarely	No
Top Level	4	0	0	0
Middle level	6	0	0	0
Lower Level	11	2	0	0

Table 4.7: Access to the Computer in the Working Activities

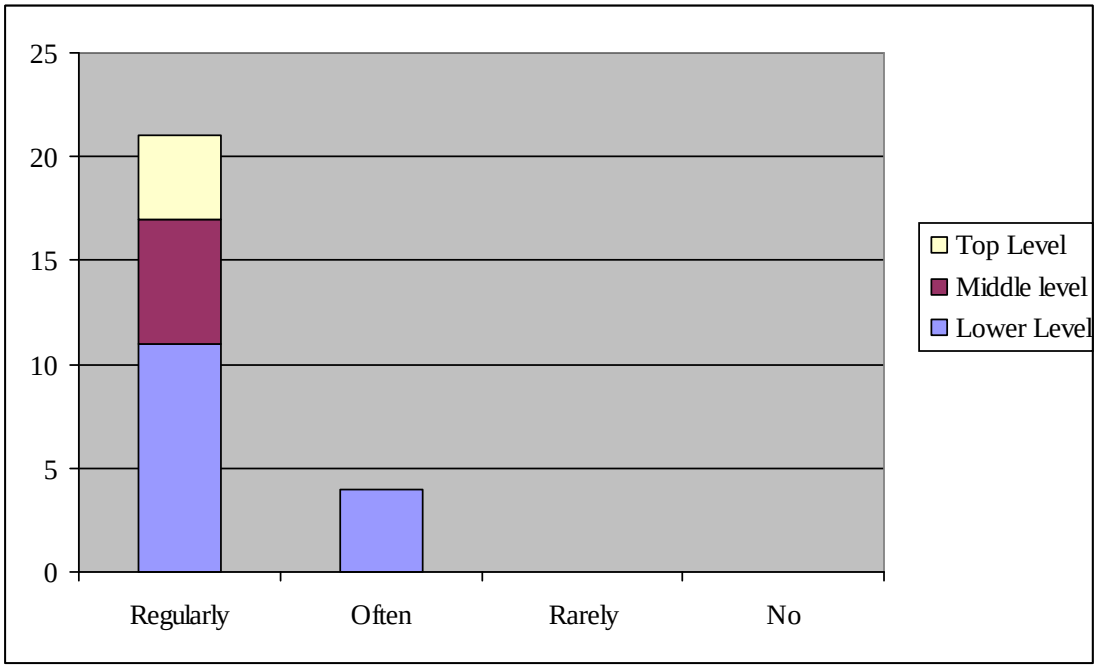


Figure 4.19: Access to the Computer in the Working Activities

IV. Use of Computer

Option Details	No. of respondents
To analyze past data (1)	-

To get the current information (2)	11
For projection of future situation (3)	-
(1), (2) and (3)	4
(1) and (2)	10

Table 4.8: Use of Computer

The table shows that most of the employees use the computer to analyze past data and to get current information. And only small number of employees uses the computer to analyze past data and to project the future situation.

V. Importance of MIS in the Organization

Option Details	No. of Respondents
High	18
Moderate	7
Low	0
Don’t Know	0

Table 4.9: Importance of MIS in the Organization

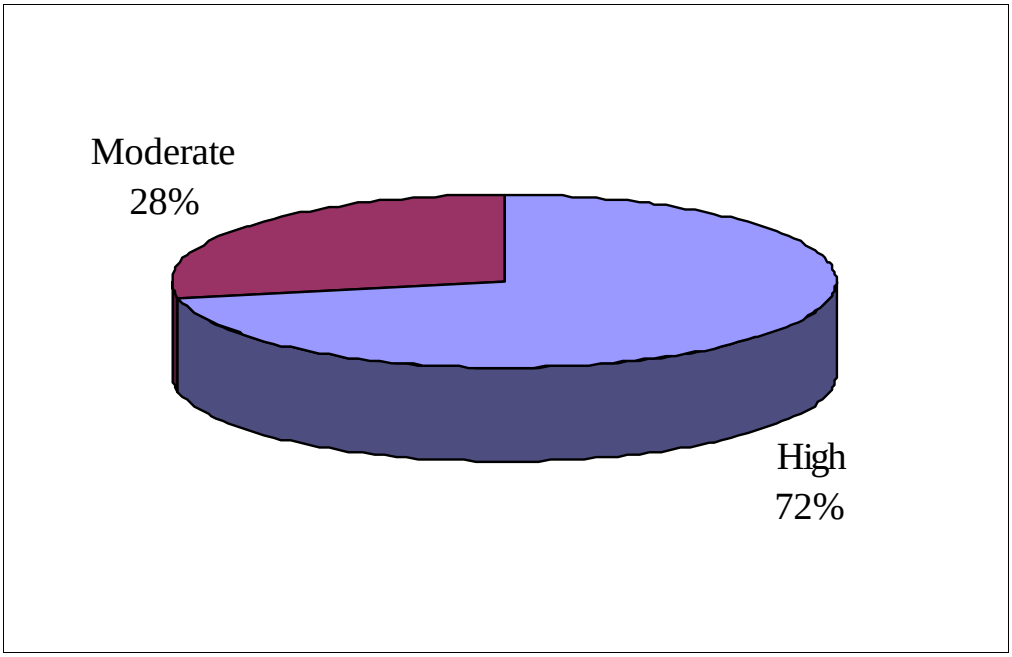


Figure 4.20: Importance of MIS in the Organization

VI. Use of MIS in Decision Making

The following table shows the opinion about the use of MIS in decision making. The result shows that most of employees believe that MIS being highly used in decision making and some employees believe that MIS being used in decision making moderately.

Option Details	No. of Respondents
High	19
Moderate	6
Low	0

Don’t Know	0

Table 4.10: Use of MIS in Decision Making

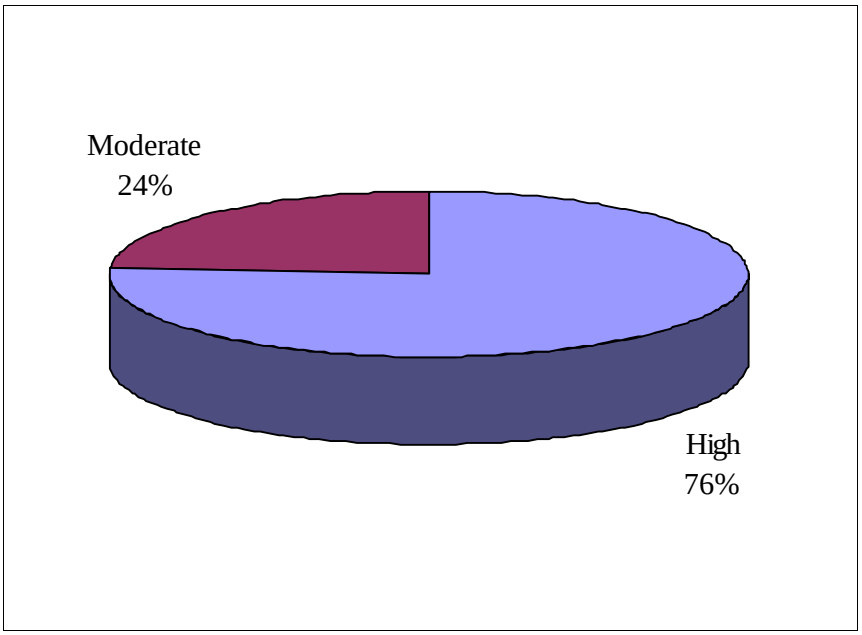


Figure 4.21: Use of MIS in Decision Making

The response from the staff of the bank clearly signifies that MIS is being used highly in the bank.

VII. Satisfaction from Current Information System

Option Details	No. of Respondents
Highly satisfied	16
Moderately satisfied	9

Not satisfied	0

Table 4.11: Satisfaction from Current Information System

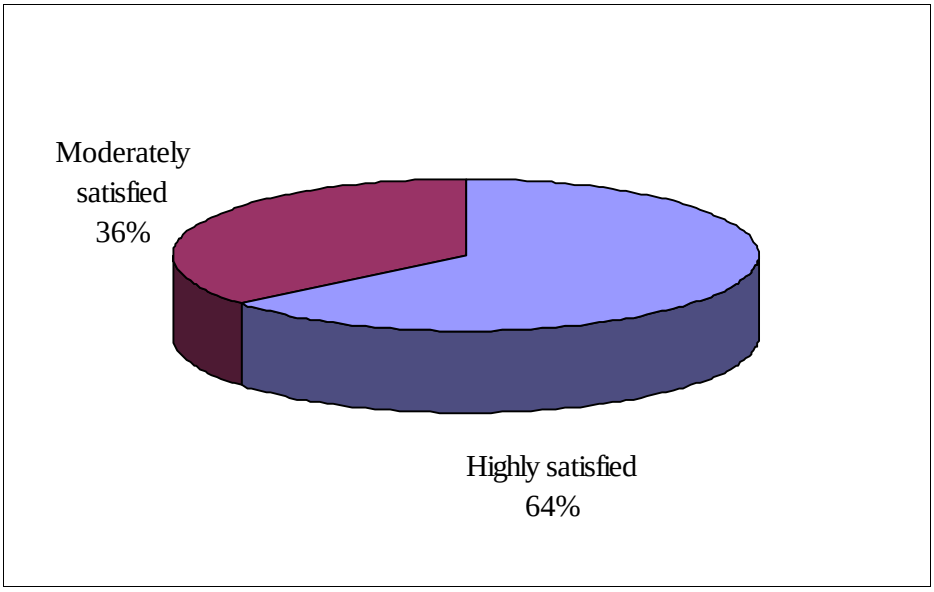


Figure 4.22: Satisfaction from Current Information System

The above table shows the opinion about the Satisfaction from current information system. The result shows that most of employees are highly satisfied from the system, low percentages of employee are moderately satisfied and no employee dissatisfied with the system.

VIII. Opinion about the statement "For an MIS to be effective, the software personnel need to be properly trained".

Option Details	No. of Respondents
Strongly agreed	20

Highly agreed	5
Partly agreed	0
Disagreed	0

Table 4.12: Need of Training Program for Effective Use of MIS

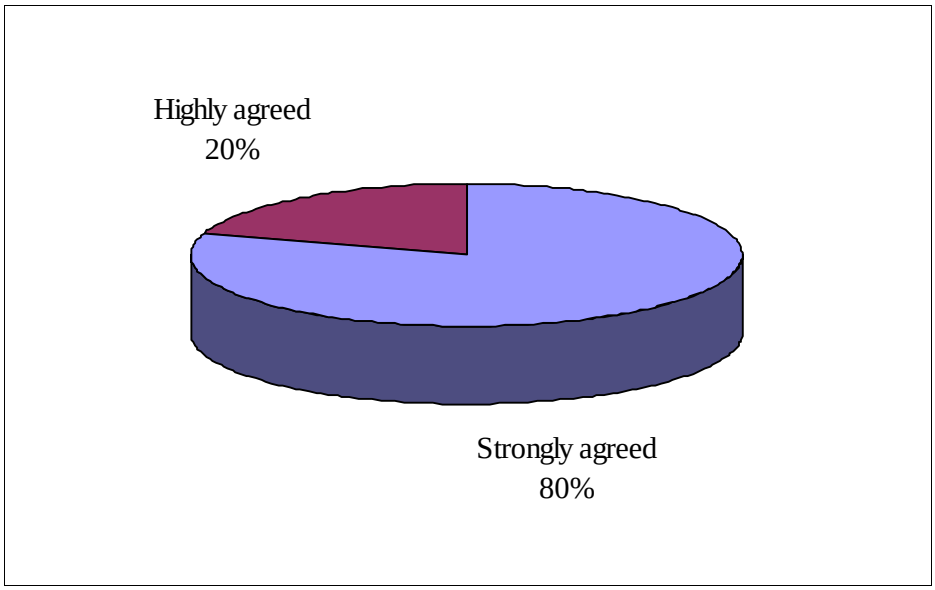


Figure 4.23: Need of Training Program for Effective Use of MIS

Above table and pie chart clearly shows that all the staffs strongly believe that software personnel should be trained to make existing system more efficient and effective. 58% staff strongly agreed with the statement and remaining 42% staff highly agreed.

IX. Management Efficiency Increase with Utilization of CBIS

Option Details	No. of Respondents
Strongly agreed	12
Highly agreed	12
Partly agreed	7
Disagreed	0

Table 4.13: Management Efficiency Increase with Utilization of CBIS

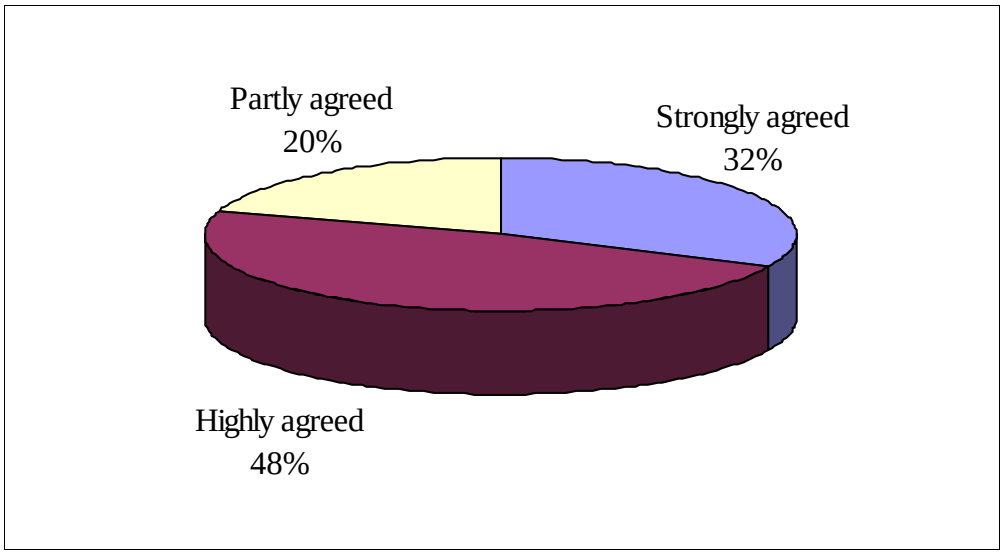


Figure 4.24: Management Efficiency Increase with Utilization of CBIS

4.5 Public Opinion Survey Data Analysis

The data table below is the primary data collected from the public to survey how they perceive the computer based management information system in Bank of Kathmandu. Respondents who visit the Nepalgunj, Kohalpur and Surkeht branch for different purpose are chosen as per judgmental sampling. The respondents are from different profession like Office employees, Businessman, Politicians, Students, Social workers, House wives etc. Detail of question and the multiple choices of questions are given in Appendix II at the end of this research study. Total of 39 individuals were interviewed to take their opinion on different eight questions.

I. Respondent Distribution by Profession

Equal no of respondent is selected from each group to make the opinion representation from all classes of persons and is tabulated as per below:

Respondent Type	No of Respondent
Office employee	8
Businessman	9
Students	7
Social workers	8
Others	7

Total	**39**

Table 4.14: Respondents Distribution by profession

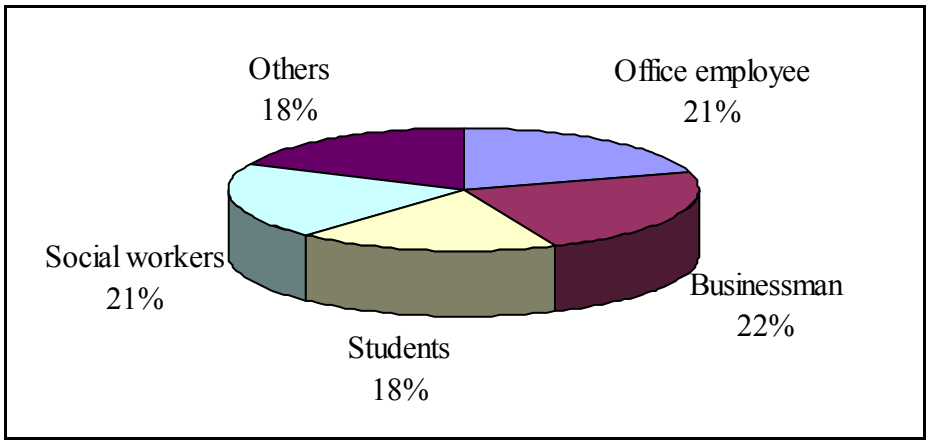


Figure 4.25: Respondents Distribution by profession

II. Purpose of Visit

The following table shows customer's purpose of visit to the bank. The purpose of visit is crucial things to be consider while developing any management information system and maintaining that. The result shows that most of the customer visits the bank for deposit and withdraw cash followed by loan and to pay interest.

Option Details	No. of Respondents
For Loan	7
To Deposit/Withdraw	17
To pay interest	4

For remittance	3
For other purpose	8

Table 4.15: Purpose of Visit

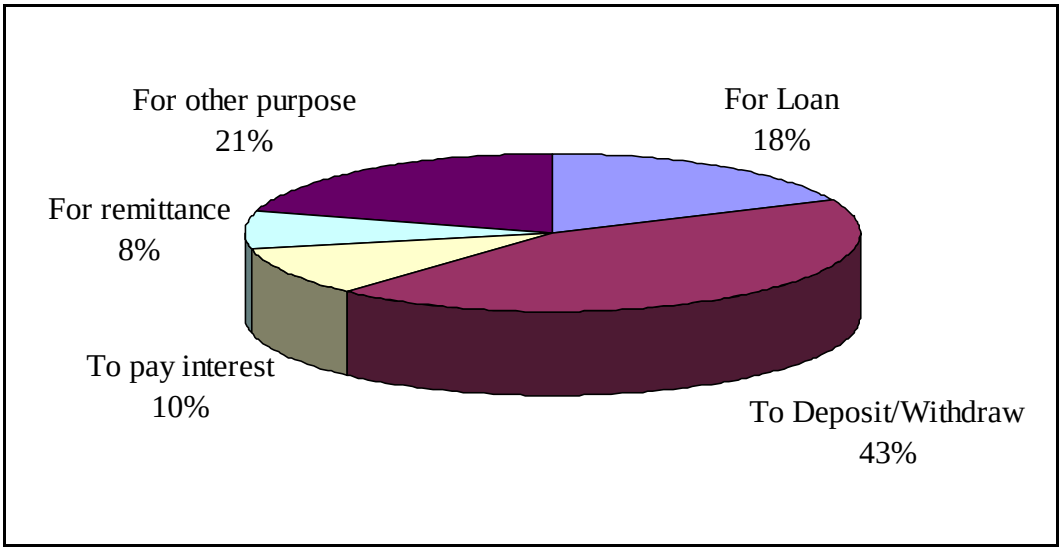


Figure 4.26: Purpose of Visit

III. Customer Rate of Bank Visit

The following table shows how often customers visit the bank. 33% respondent says that they visit the bank regularly while 52% visit the bank often and 15% visit rarely.

Option Details	No. of Respondents
Regularly	13
Often	20

Rarely	6

Table 4.16: Customer Rate of Bank Visit

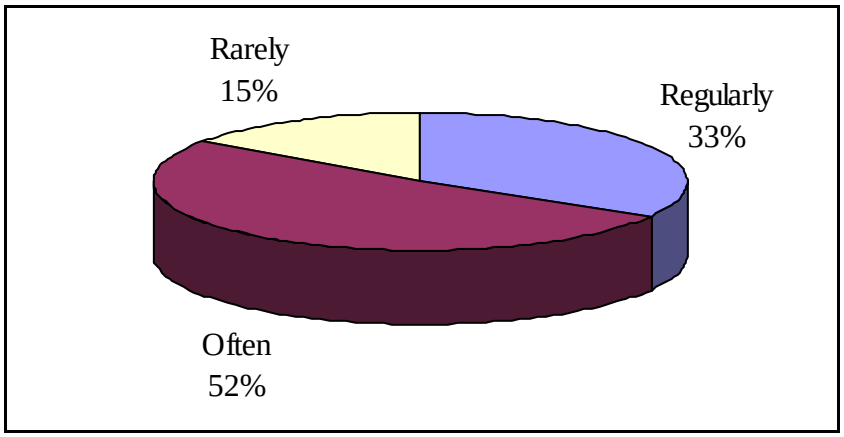


Figure 4.27: Customer Rate of Bank Visit

IV. Perception of the Customer Regarding Service Provide by the Bank

Following result clearly shows that, there are still many customers who feel that the service provided by the bank is slow even though it is using latest computerized information system in the bank. And nearly equal number of customer answered that service provided by the bank is moderate and fast.

Option Details	No. of Respondents
Fast	16
Moderate	15
Slow	8

Table 4.17: Perception of the Customer Regarding Service

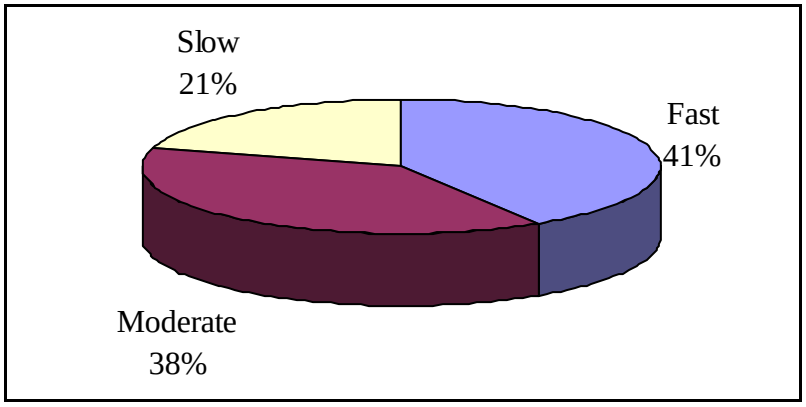


Figure 4.28: Perception of the Customer Regarding Service

V. Perception of Customer Regarding Introduction of Computer

Option Details	No. of Respondents
Fast Service	25
Quality Service	5
Fast and Quality service	9
No difference at all	0

Table 4.18: Perception of the Customer Regarding Computer

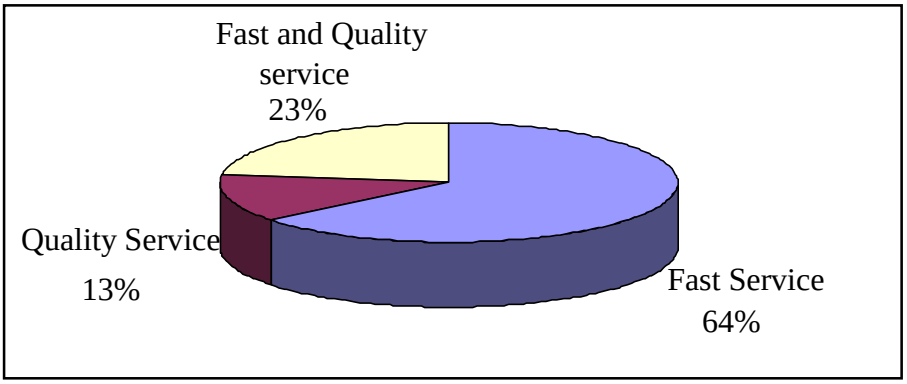


Figure 4.29: Perception of the Customer Regarding Computer

Above table and pie chart shows that 64% respondents believe that introduction of computer in the banks relates to fast service while only 13% relates it to quality service. And 23% respondent says that introduction of computer will result fast and quality service.

VI. Satisfaction Rate of the Customer

Option Details	No. of Respondents
Highly satisfied	6
Moderately satisfied	26
Not satisfied	7

Table 4.19: Satisfaction Rate of the Customer

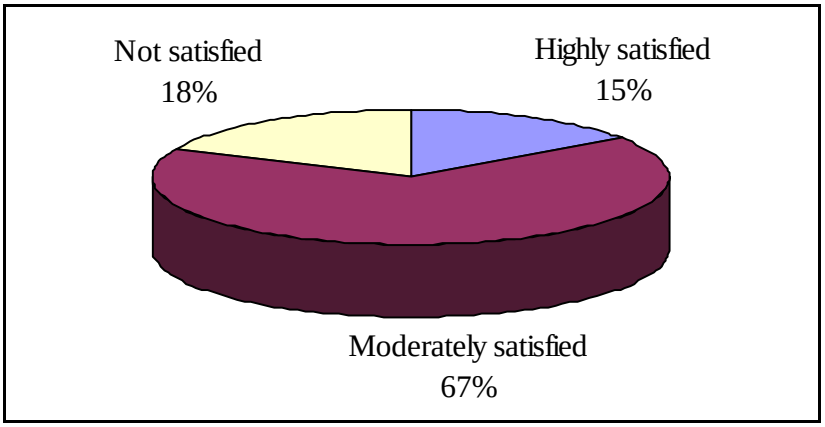


Figure 4.30: Satisfaction Rate of the Customer

Data presented above clearly shows that most of the customer visited the bank for day to day transaction and they are aware that bank is changing in terms of information technology. Most of the customer still feels that the service provided by the bank is moderate and slow. Likewise, most of the customer still not satisfied fully. Among the customer whose view are observed, only 15% said that they are satisfied by the service provided by the bank.

CHAPTER V

SUMMARY CONCLUSION AND RECOMMENDATION

5.1 Summary

Survey result shows that most of the public, who visits the bank, is positive towards the current management information system in the bank. And result also shows the need of the computerized information system in the bank is high. Respondents also agree that computerized information system ultimately enhances the performance of the bank.

All of the sample branches are using computerized information system since its operation with the Finacle system. As staffs of the Nepalgunj, Kohalpur and Surkhet branch have knowledge of handling the system and based on the opinion pool survey conducted on those branches with all level staffs and general public and the observation of bank and interactions with customers, we can summarize the output of this research as follows:

- A few numbers of staffs have very good knowledge of MIS while approximately 50% of the employee has average understanding of it.
- Most of the lower level employees just know to post the banking transactions.
- Although lower level employees have regular access to the computers they do not know much about banking software. In the contrary, top and middle level staff has good knowledge of MIS.

- Most of the staff uses MIS to retrieve the current information rather than for the future forecasting and analysis of past data.
- Majority of employees have awareness of importance of MIS in an organization.
- Maximum number of respondents agreed that MIS is being used in decision making at all level.
- None of the employees are not satisfied with the existing information system and maximum numbers of employees are highly satisfied with Finacle.
- All the staffs strongly and highly agreed that 'for an MIS to be effective, the software personnel need to be properly trained'.
- It is felt after the research that CBIS increases the efficiency of Management.
- Majority of customers believe that BOK has fas service.
- In general, customers are satisfied with the service provided by BOK.
- Customer believes that introduction of CBIS in bank tends to have fast services.
- Customers are being benefited by the evening counters and extra banking hours.
- Long queue of customers were observed in some of its counters.

- Some of the customers were not happy with the process of receiving ATM cards.
- Customers have complains of getting ATM machines offline so often.
- Staffs rated the existing software as efficient and easy to operate.
- People are positive towards the new banking products lunched by BOK as sms and internet banking.
- Sometime ATM and system goes offline when weather becomes cloudy or unfriendly.
- Customers are not happy with the amount of ABBS (Any branch banking service) charge charged by the bank.
- BOK has joined hands to Himalayan Bank and Laxhmi Bank to provide even better service to its customers. In this way customer of these three banks can cash their cheque from any branch of these three banks with certain charges. But customer still have complains of having the amount limit of Nrs. 50000.00 per cheque is very low and the process is time consuming at the same time.

5.2 Conclusion

After the performance of research, the author concludes that, although there is still lacking some effectiveness in utilization of MIS in the BOK, the performance of existing system is satisfactory in comparison to the locally produced software.

Since data are centrally stored and disseminated data security part of the bank is well justified. Coordination between card division and Information and Technology Development Department unit is taking bank to the high altitude of success.

Most of the employee believes that Finacle is easy to handle and effective software for any bank though it has some minor complications. Moreover, majority of customers are satisfied with the service provided by bank. Eventhough BOK connects its branches all over Nepal via strong hardware and VSAT, ATM goes offline occasionally. And some customers are tired off seizing ATM cards by ATM machines by not letting them more chance to put the pin in more occasions.

The study shows that there has been increase in the awareness of online system of bank in general public as well. It is found that huge number of customers visit to BOK branches because it has fast and quality service and wide range of banking products. Variation in saving account and attractive interest rates are acting as a motivation factor to them. But customers said the loan approval process is little time consuming in BOK rather than in any other banks.

The new service of three bank alliance offered by the bank is appreciated but it has been blamed of being time consuming. Customers did not prefer waiting for hours to get payments of their cheques.

Similarly Most of the employees are found to be polite, helpful and friendly toward customers while, some of them presented themselves as rude as they can be. Due to high work load and less number of staffs at Surkhet branch, it made customer to stand in long queue to get services.

To sum up, the existing system of BOK is performing well with few complications and majority of the customers are satisfied with the service of the bank through there is some time consuming process on making transactions.

5.3 Recommendations

Although BOK is one of the leading bank in this sector of Nepal it need to perform some exercise in the field of effective, efficient and proper utilization of the system. Getting in to top position is not as hard as to maintain the position in this competitive market of banking. Growing number of banks and neck to neck competition traces out to the improvisation of service and system. With the researcher perspective view, following recommendation are purposed for action.

- Even though there is knowledge of MIS in employee it would be better for organization to make every employee who uses the MIS, perfect in every aspect of the software.
- Bank can utilize the MIS not just to retrieve the current information.
- It is felt to make the VAST technology more strong for better service.

- Time consuming process of loan approval should be minimized.
- Employee's access to the computer should be increased to the optimum level.
- Number of staffs in certain branches should be increased to avoid customer's dissatisfaction.
- Process of receiving ATM card should be normalized.
- There is need of training on staffs regarding operation of software.
- There is still lacking proper utilization of MIS in decision making level which should be reduced.
- ATM machine should be available 24 hours a day.
- ABBS charge should be minimized or should impose new rule regarding ABBS charge to get more popularity.
- Service alliance of three banks should be even more strong for better service.
- Bank should carry out researches up on its MIS to find out the current status, performance and effectiveness of the system. It will help bank to make strategies regarding future uncertainties.

BIBILOGRAPHY

Acharya, Ishwor (2002), **Implementation of MIS in RNAC**, Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Adhikari, Bimal Prasad (2003), **Information Technology in Security Management**, Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Adhikari, Shanker (2005), **Introduction to Management Information System**, Kathmandu: Buddha Academic Publishers.

Adeoti-Adekeye, W.B. (1997), "Importance of MIS", **Library Review**, Vol. 46, No. 5: 318-327.

Bhattarai, Ajit P. (2003), **Performance of Management Information System in Kumari Bank**, Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Duff, W.M. and Asad, M.C. (1980), **Information Management: An Executive Approach**, London: Oxford University Press.

Ellis, D. (1986), "Information Management and Information Work", **International Journal of Information Management**, Vol. 6, No. 2: 15-26.

Jawadekar, W.S. (2003), **Management Information Systems**, New Delhi: Tata McGraw-Hill.

Mass, R. (1982), "Records, Words, Data Whatever You Call, It's Still Information-Part 1", **Information and Records Management**, Vol. 16, No. 6: 18-20.

Mudrick, Robert R., Ross, Joel E. & Clageett, James R. (2000), **Information System for the Modern Management**, New Jersey: Prentice Hall.

O'Brien, James A. (2004), **Management Information Systems**, New Delhi: McGraw-Hill.

Panta, Y. P. (1971), **Banking and Development**, Kathmandu: Sahayogi Prakashan.

Pradhan Yadhav (1986), **A Study on Micro Computer and Computerization in Nepal**, Unpublished Master Thesis, Shanker Dev Campus, TU.

Salton, G. (1975), **Dynamic Information and Library Processing**, London: Prentice-Hall International.

Stonecash, J.C. (1981), "The IRM Showdown", **Infosystem**, Vol. 28, No. 10: 42

Stoner, James A.F., Freeman, Edward R. & Gilbert Danial R., (2000), **Management 2000**, New Delhi: Prentice Hall of India.

Thapa, Devinder (2003), **Future Prospective of Online Banking in Nepal**, Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Thierauf, Robert J. (1978), **Decision Support System for Effective Planning and Control**, Englewood Cliffs: Prentice-Hall.

Turban, Efraim, Arson, Jay E. (2004), **Decision Support Systems and Intelligent Systems**, Singapore: Pearson Education.

Zoikoczy, P. (1981), **Information Technology: An Introduction**, London: Pitman.

Leek, C. (1997), **Information Systems Frameworks and Strategy**, E-Journal, Leeds Metropolitan University, Leeds, UK

Shrestha, Satya N. (2004), **Role of MIS in Franchising Network,** Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Shrestha, Bhasker (2005), **Human Resources Information System in Yeti Airlines,** Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Joshi, Manindra R. (2005), **Management Information System in Nepalese Hospital,** Unpublished Master Degree Thesis, Shanker Dev Campus, TU.

Referred Websites

www.answers.com

www.dictionary.com

www.can.org.np

www.emeraldinsight.com

www.knowledgestorm.com

www.investorwords.com

www.managementglossary.info

www.wordnet.com

www.webopedia.com

www.infosys.com

www.bok.com.np

www.ercim.com

www.wikipedia.org