

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Economic development always comes at first priority for the overall development of any country. Economic development doesn't happen in overnight there must be a fully developed and functioning economic system in the country for the economic development. As economic system is made up with various components like infrastructure development technology, industries, regulating laws, governing bodies, and financial system all these components should work properly and in order for the sound economic development. Among these components of the economic system, financial system is of utmost importance in all the economies which consists of various banking institution like commercial banks, development banks, finance companies, micro credit cooperatives and non banking financial institutions like insurance companies, mutual funds and provident fund.

In the context of Nepal, our financial system is also in the developing phase like our economy. In the history Nepalese economy remained isolated and dominated by agriculture for centuries and financial system of economy was also dominated by unorganized money market consisting of merchants, land-lords and indigenous individual money lenders. It was first formal banking institution in Nepal; the foundation of modern financial system of Nepal prevailed. Then another milestone in the development of Nepalese financial system was establishment of 'Nepal Rastra Bank' as central bank of Nepal in 1956. NRB was given authority to issue Nepalese currencies, direct and regulate Nepalese financial institutions and advise the government in formulation and implementation of monetary and fiscal policy. With these events financial system of our country began to take shape. After more than 50 years of establishment of 'NRB', at present our financial system has evolved as an important body of national economy with finance ministry and NRB (independent body of government) at top level to direct and regulate all the financial activities in the country.

Now 31 commercial banks, 61 development banks, 82 finance companies, 13 micro development banks, 19 micro finance companies and 38 NGO's with limited authority to conduct banking activities are providing banking and financial services. The no. of financial institutions in the country reaches 244 altogether and it will be more than 600 financial units if all branches of these institutions are also included. But commercial banks are playing very influential role as they mobilizes primary fund of the economy.

In broader term, basic functions of bank always have been accepting deposits and lending fund since thousands of years. Banks from centuries are providing the same basic services in different forms through different medium according to the economic, technological social development. In ancient time, people used to deal in food grains and banks of that time also accepted deposit of such commodities and dealt in such means. Similarly, with the invention of coin and paper money as medium of exchange banks also began to deal in money and provided different kinds of financial services. Therefore, from history to present banking institutions as a part of financial system are changing their medium of providing financial services with the change in medium of exchange, social and technological changes.

As our world has become like a small village with the worldwide connectivity by information and communication technology innovation. Banks of 21st century have become much more efficient, faster and convenient in providing financial services to wide range of consumers with quick adoption technology. Computer network driven automated system has made it possible for banks to provide banking services 24 hours a day and 365 days a year.

Today's banks seem ready to provide any kind of financial services at any time and any where in the world through internet technology. Now as one important step ahead towards the e-commerce, online banking or E-banking is becoming very popular in the developed countries. Modern techno-savvy banks are already using plastic money or e-money like credit, debit cards and ATM's since more than decade. Using computer networks and SWIFT to exchange financial information across branches and banks for

internal banking processing is not a new practice for most of the modern banks with the popularity of personal computers as consumer goods of durable nature, internet and world wide web as sources of exchanging information, those banks are now gradually going to use this internet/global networks as channel of providing banking service. And this new channel of electronic of online banking is known as Internet Banking.

Online banking was first offered in 1995, when 16 of the largest banks, including Compass Bank, Chase and Nations Bank, began the services through Intuit Inc.'s Quicken financial software. Prior to 1998, there had been concern over the slow rate at which consumers were adopting online banking, so the burst of activity in the past year has surprised most industry observers. Two factors are responsible for driving the explosive growth in online banking. One is the rise in the number of Nepalese people with access to the internet, the second is the "built it and they will come" approach taken by financial institutions. Internet banking generally means that a home user direct dials the bank via a modem, logging onto the internet via an internet service provider and then going to the banks web page before accessing the secure site via a password.

Major Milestones – Electronic Banking Aspect

- i.** Evolution of Joint Venture Bank in Nepal (NABIL Bank) in 1984.
- ii.** Introduction of Credit Cards in 1990.
- iii.** First ATM launched by Himalayan Bank Limited (HBL) in 1995.
- iv.** Tele-Banking facility was introduced in 1997 by HBL.
- v.** Formulation of IT Policy in 2000.
- vi.** Internet Banking was first introduced by Kumari Bank In 2002.
- vii.** SMS – Banking (Mobile Banking) was launched by Kumari Bank in 2004.

Banking industry of Nepal has been taking rapid stride in the advancement of technology and aggressive infusion of information technology in the functioning of the banks. The industry has not only kept pace with technological developments but has also forced the compute industry to continuously keep pace and innovative products to suit its needs. Banks are using information technology to gain competitive advantage. The Internet

banking is much faster, convenient and economic than the traditional "brick-to-mortar" banking as this banking service channel is able to provide all financial services with computer mouse clicks at comfort of consumers own room through internet connected personal computer.

It's easy to do internet banking, sit down, boot up your computer and dial into banking center. You can balance your checkbook, invest I certificates of deposit and pay your mortgage and more, all from home. You can even pay your credit cards right online. No need to jump in the car and fight traffic to get to the bank before it closes. Plus you can do your banking whenever you want. You are not limited to lobby hours.

Portfolio of Laxmi Bank Limited:

Laxmi Bank ltd. was incorporated in April 2002 as a commercial bank. A decade old first generation finance company (Hisef Finance Ltd.) has merged and was converted to that of Laxmi Bank Ltd. This office was converted to a full branch and its corporate office is situated at Hattisar. Laxmi Bank Ltd. started its operation with a view and objective of extending professionalized and efficient banking services to various segments of the society. The bank is providing customer friendly services throughout the nation. The current shareholding constitutes of promoters holding 55.42%, Citizen Investment Trust holding 9.02% and the general public holding 35.56%. Promoters represent Nepal's leading business families with diversified business interests.

With a view to providing safe, seamless, quick and advance banking services, the bank has been heavily investing in contemporary banking technologies. The bank provides its services through a host of delivery channels including cell phone, internet, ATM Point of Sale (POS) etc. in addition to a network of physical branches. Its internet banking facility comes with capabilities of online shopping in addition to regular internet banking features, similarly, through the bank's alliance with Smart Choice Technologies (SCT), the ATM/ Debit cardholder of Laxmi bank has access for a network of ATM's and POS terminals located in all major urban centers of the country. This bank is the first in South Asia to have implemented SWIFT Net, the advanced version of SWIFT technology,

which is used for speedy and secure payment and messaging services. Under the professional management team, the bank has established itself as an emerging key player. Today the bank is recognized as an innovative and progressive bank geared to providing shareholders and customers with quality earnings and value-added services. Transparency, good governance and sound business growth are the banks driving forces. The bank has been playing a significant role for the development of the nation. The objective of this bank is to provide wide variety of banking services and products in the emerging socio-economic environment within and outside the country maintaining high standard of integrity to provide its services to various sectors viz., industries, trade, priority and deprived sectors, and all those who seek and need banking services, and the bank has been efficient so far to provide these services complying rules and regulations of the country and NRB guidelines.

The main feature of the bank is Internet Banking. Through this channel the client will be able to view their account balance, transfer funds, stop cheque payments, send instructions etc. to the bank online, 24 hours a day, 7 days a week, thus empowering the clients to manage their financial affairs on a click of the mouse in the highest degree of security and speed. Bill payment is an added feature whereby clients have the option of paying their bills of various service providers through the internet. The bank has joined hands with SCT to access a network of about 20 ATM and over 200 POS terminals located in all major urban centers of the country. Currently, Bank of Kathmandu, Everest Bank Limited and Himalayan Bank are the other members of this shared network. The bank has a dedicated NRN cell to cater to the needs of and requirement of the Non-resident Nepalese (NRN) and has customized its product to suit their needs; NRN can open an account, transfer funds between accounts and constantly keep track of their funds through the online services of the bank.

Recently the bank has started one new product i.e. Mobile Money. This service is also a kind of Internet Banking. Customer can pay their bill (mobile, credit card, PSTN phone), transfer the fund from one account to another through their mobile. Laxmi Bank Limited is the only one and the first bank to introduce this product.

1.2. Focus of the Study

Today's world has become like a small village due to new innovation of efficient information technologies like computers and mobile. Given the level of infrastructure and level of computerization in the industry, it is clear that banks in future are going to be modern with interconnectivities facilitated by emerging technologies.

In such a context there is no other option for Nepalese banks than to evolve a strategic vision that builds over the present technology base. The sharp growth of computer use as now consumer goods of durable nature has also given rise to the need for use of computers in the services sectors as well. Banking industry as a service provider can not naturally lag behind in the movement toward the techno-age. Internet banking in Nepal is still a very new for both consumers and banks and many more aspects of internet banking yet to evolve in our country. Considering all these factors, this research work is focused on studying future prospective, drivers and inhibitors of internet banking adoption in Nepal.

1.3. Statement of the Problem

Nepalese commercial banks are generally found to have been adopting the services of internet banking as competitive tools and as a step towards innovative services. But Nepal is yet a very least developed country; there are a lot of ambiguities about the application of internet banking. Therefore this study is conducted to find out the answers of the following questions that are as follows:

- i. What is the present status of internet banking in Nepal and how it would be in the future prospective?
- ii. What are the advantages of internet banking to the Nepalese customers?
- iii. What are the major drivers and inhibitors for adoption of internet banking in Nepal?

1.4. Objective of the Study

The main objective of the study rests upon the examination and analysis of internet banking service provided by Laxmi Bank Ltd. Primary objective of the present study is to explore present status of internet banking in selected commercial banks. More over the study has specified the following objectives:

- i. To analyze and evaluate the emergence of Internet banking in Nepal.
- ii. To examine the opportunities and purpose of the Internet banking in the context of Nepalese commercial banks.
- iii. To identify the Internet banking problems and facilities providing by the banks to their customers .

1.5. Significance of the Study

At present the commercial banks are gaining a wide popularity with in and outside the country through their efficient management and professional services and playing an eminent role in the economy. Internet Banking is one of the main services provided by the commercial banks where the whole bank is rested upon. Study on Internet Banking of commercial bank carries a great significance and importance to various groups.

- i. Most of the Nepalese people are still not aware about the internet banking or online transactions, this study will help them to get the concept of internet services available to them.
- ii. Today most of the part of world's economy depends upon financial institutions which can not survive without the support of IT. So this study will provide a useful feedback to the IT policy maker for the bank and also becomes a useful reference for other commercial banks for the formulation of appropriate strategies.
- iii. The study will be very significant to those students and scholars who wish to make further research on the subject.

1.6. Limitation of the Study

Each and every research work is conducted under some sort of constraints and restrictions. To make this study precise, meaningful and valuable, some limitations are made so that the objective of the study is achieved within the limited time, resources and information. The research study has some limitations. The main limitation of the study is the time constraint and the other are delineated below.

- i. Through there has been in operation of 30 Commercial Banks in Nepal, most of the banks are using Internet Banking but only Laxmi Bank Ltd. has been selected as sample.
- ii. This is only a descriptive study on internet banking in Nepal.
- iii. Among many factors affecting internet banking, this study is focused on only some factors: present scenario, future prospects, drivers and inhibitors of internet banking in Nepal.
- iv. The whole study is based on the opinion survey of different professionals, which may not be free from limitations due to individual response.
- v. The study has been done with limited volume of population sample and findings of the study cannot be fully generalized as more rigorous study is needed with initial reference from this study.

1.7. Organization of the Study

Since the study carried out to different stages and procedures as it needed as well the study organized in the following five chapters in order to make the study easy to understand.

Chapter one:	Introduction
Chapter Two:	Literature Review
Chapter Three:	Research Methodology
Chapter four:	Presentation and analysis of Data
Chapter Five:	Major findings, conclusion and recommendations.

The report is organized in this fashion to make the study in line with simple research methodology approach.

In *chapter 1* an introduction to the research area is given and the research purposes together with the research questions are stated.

The next *chapter 2* presents the literature review followed by the conceptual framework of reference in the same chapter.

In the *chapter 3*, the methodology used for this thesis will be discussed.

The *chapter 4* will handle the presentation and analysis of the data gathered from the respected IT officers as well as the users of IB services.

Finally, in *chapter 5*, the presentation of this study's contribution is brought up under conclusions. This chapter also discusses implications for the service providers and for future research.

CHAPTER TWO

REVIEW OF LITERATURE

Literature review is a process of finding previously uncovered facts on research topic. For the purpose of finding basic information about the Internet Banking and the Internet Banking in Nepal various resources, which are related to the study, has been reviewed. It is separated into two parts – Theoretical and Research Reviews. The first section presents the theoretical concept on electronic and Internet banking and the second part review the relevant dissertations and concerned reports.

2.1. Theoretical Review

In this section attempts have been made to review the theoretical concepts on Internet Banking. This includes historical background of banking, Internet Banking, origin of Internet Banking in Nepal and its future prospective.

2.1.1 Concept Bank and its History

Bank is a financial institution that accepts deposits and channels the money into lending activities. Bank is also a mediator between supply and demand of fund. Bank is a commercial or state institution that provides financial services, including issuing money in form of coins, banknotes or debit cards, receiving deposits of money, lending money and processing banking transactions. A commercial bank accepts deposits from customer and in turn makes loans based on those deposits. Some banks (called bank of issue) issue banknotes as legal tenders. Bank also offers ancillary financial services to make additional profits. Most banks also rent safe deposit boxes in their branches. The essential functions of a bank are to provide services related to the storing of deposits and the extending of credit. The word **Bank** first originated from Italian word **banco** "desk/bench", used during the renaissance by Florentines bankers, who used to make their transaction above the desk. The first modern bank was founded in Italy at Genoa in 1406; its name was "**Banco di San George**" (Bank of St. George).

Bank act as payment agents by conducting checking or current accounts for customers, paying cheques drawn by customers on the bank, and collecting cheques deposited to customers' current accounts. Banks also enable customer payments via other payment methods such as telegraphic transfer, EFTPOS, and ATM. Activities of the bank can be divided into retail banking, dealing directly with individuals and small businesses; business banking, directed at large business entities; private banking, providing wealth management services to High Net Worth Individuals and families; and investment are profit-making private enterprises. However, some are owned by government, or are non-profits, central banks are normally government owned banks, often charged with quasi-regulatory responsibilities, e.g. supervising commercial banks, or controlling the cash interest rate. They generally provide liquidity to the banking system and act as Lender of last resort in event of a crisis.

In the history of human civilization it is found that banking invention preceded even that of coinage. Banking originated in Ancient Mesopotamia where the royal palaces and temples provided secure places for the safe keeping of grains and other commodities. Receipts came to be used for transfers not only to the original depositors but also third parties. Eventually, private houses in Mesopotamia also got involved in these banking

operations and laws regulating them were included in the code of Hammurabi. The evolution of banking dates back to the earliest writing and continues in the present where a bank is a financial institution that provides banking and other financial services. Currently the term bank is generally understood as an institution that holds a banking license to provide banking services.

2.1.2 Historical Background of Banking Service in Nepal

Nepalese economy is one of the less industrialized and agro based economy. Nepalese financial system is still in evolutionary phase. Existence of unorganized money market consisting of Landlords, Shaukharas (Rich Merchants), Shopkeepers and other indigenous individual moneylenders has acted as barriers to institutionalized credit. During the Prime Minister ship of **Ranoddip Singh** around 1877 A.D., numbers of financial and economic reforms were introduced. The establishment of the "Tejarath Adda" fully subscribed by government in the Kathmandu valley was one of them. "Tejarath Adda" disbursed credit to the people especially on the collateral of gold and silver. Thus the establishment of the "Tejarath Adda" could be regarded as the premier foundation of modern banking in Nepal.

Beginning of modern banking in Nepal started from the establishment of Nepal Bank Limited on November 1937. it had foundation of modern financial system in Nepal. It was a joint venture between government and the private sector. After then, the Nepal Rastra Bank came into existence as the central bank on April 26, 1956 A.D. The second commercial bank Rastriya Banijya Bank was established in 1966 A.D. Besides Nepal Bank Limited and Rastriya Banijya Bank; other commercial banks did not come into existence until 1984 A.D. The commercial banking act 1974 was amended in 1984 A.D. to increase the competition between commercial banks. As per the provision made in this act, private sector (including foreign investment) was given freedom in opening commercial bank. Consequently, Nepal Arab Bank Limited (NABIL) was established in 1984 A.D. as a joint venture bank. Likewise Nepal Indo-Suez Bank Limited and Nepal Grindlays Bank Limited (Renamed as Standard Chartered Bank limited) were established under joint venture in 1986 A.D. and 1987 A.D. respectively.

After the initiation of democracy in 1990 A.D., NRB adopted more liberal policy in establishing the commercial banks. Today 31 commercial banks, 61 development banks, 82 finance companies, 13 micro development banks, 19 micro finance companies and 38 NGO's with limited authority are providing banking services in Nepal.

2.1.3 IT and the Banking Sector

IT revolution in the banking industry will help to cope with the explosive growth in the number of transactions and to provide improved customer service. In the process, decision-making in banks would get immensely facilitated. We have been witnessing since about the early eighties the phenomenon of widespread use of computers and communication technology in most of the industrialized and emerging market economics. This has resulted in faster funds movement across nations and borders.

Globalization of economies and financial liberalization within the economic has opened new opportunities of growth for techno-savvy institutions, while for the others these have resulted in shrinkage of revenues. The use of IT in the banking industry in our country has however been somewhat limited and has as a result, restricted our presence in international operations. Even in critical spheres such as those involving funds transfer, and MIS based decision-making, there has been little evidence of proactive movement towards wholesale computerization.

In Nepal we have such a large reservoir of human capital trained and skilled in Information Technology, and we are aware of the fact that a number of countries have developed their financial sector through an extensive use of IT as the medium of growth. It is only with the growing recognition of the need for having in place financial reforms, has the interest in IT application in the banking sector in Nepal increased. Perhaps the Globalization has in a way contributed to the growing technology adaptations in the banks. The sharp growth of computer use in new consumer goods of durable nature has also given rise to the need for use of computers in the service sectors as well banking industry, as a service provider cannot naturally lag behind in this movement toward the new techno-age.

2.1.4. Information and Communication Technology (ICT)

IT is any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display switching, interchange, transmission, or reception of data or information. The term information technology includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources.

ICT is the technology of computers, telecommunications, and other devices that integrate data, equipment, personal and problem solving method in planning and controlling business activities, information technology provides the means for collecting, storing, encoding, processing, analyzing, transmitting, receiving and printing text, audio and video information.

Information Technology (IT) or information and communication technology (ICT) is the technology required for information processing. In particular the use of electronic computers and computer software to convert, store, protect, process, and transmit and retrieve information from anywhere and anytime.

Hardware: In the context of information technology, the computer and its peripherals, equipments used for transmission of information and information security all constitute the hardware.

Software: Is the computer programmed language written in the high level or machine level language to made the instructions of computer users understandable by the computer system and execute the processing as per the instruction of the user and bring desired output. There are different types of software that helps the computer run smoothly. System software helps the computer system constituting hardware peripherals and other application software in a coordinated way. Application software is the software developed to apply in different sectors of work processing. Different kinds of financial software and banking software can be regarded as example of application software.

Internet sometimes called the "Information superhighway", is a worldwide, publicly accessible series of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol (IP). It is "network of networks" that consists of millions of smaller domestic, academic, business and government networks, which together carry various information and services such as electronic mail, online chat, file transfer and interlinked web pages other resources of the World Wide Web (WWW).

World Wide Web and Internet are not synonymous. The Internet is a collection of interconnected computer networks, linked by copper wires, fiber optic cable, wireless connections etc. In contrast, the web is a collection of interconnected documents and other resources linked by hyperlinks and URLs. Now a day's, the most easily accessible sources of information is becoming the websites, we are already experiencing the convenience of using email instead of post mail. According to the study of "Dreams and Ideas" an ICT company, there are more than 2500 sites in the net with Nepalese domain and information. This is indicating that our presence in the virtual world is also growing. Netcraft.com, a website portal specially working on the study and research of WWW world, has reported that there are 1.50 billions websites on the same organization it was found that more than 4000 websites has got SSL certificates indicating that they are completely secure to conduct all kinds of electronic payments and e-transactions. Websites can be broadly all kinds of electronic payments and static and dynamic websites. Statistic websites is only informational and not used interactive features whereas dynamic website is that type of website which provides information as well as has user interactive features.

2.1.5. IT / ICT in Nepal

Our modern life today is hard to imagine without information and communication technology as it has changed our daily life dramatically. New innovations and developments in the information and communication technology have made our world like a small village. The revolution of IT and effects of globalization process are getting more apparent even in our country. After the introduction of first computer in 1972 and sound development in telecommunication sector, Nepal also has experienced a lot of

cyber activities and IT is showing that Nepal is also gradually moving towards the online world with growing number of ISPs which reached 36 till this year, around 1,000,000 internet users and visitors in CAN InfoTech reached around 400,000 last year. There were hundreds of institutes and colleges providing education related to IT and in school level also computer education has been incorporated in the basic curriculum. All this statistics indicates that IT is growing in Nepal and more people are getting used to with the technology.

2.1.6. Computerization in Banks

With the changing technological environment, banks in future cannot survive without the support of Information Technology is merely stating the obvious. The point to ponder over is whether the industry is now poised for the challenges that arises as result. From all indications; banks seem to be prepared to exploit the opportunities that globalization and financial liberalization provides.

Computerization of branch operations, controlling offices and Head offices has been going to get very popular in the modern banking practice sharply. In recent times, since that is the only way by which senior managements in banks can gain information on the size of operations on a daily basis. The banking industry is clearly cognizant of the imperatives of financial liberalization and has therefore attempted to computerize branches that are located in commercial important centers across the country.

The large functional and geographical spread of banks has led to sharp growth in the number of accounts and in the area as of operation of banks. This has necessitated switchover from hard cash to paper based instruments. This has been facilitated to extend the Internet Technology to coming year. Computerization of service branch operations serves as vital fulcrum point for all clearing of drawn on it, are routed through the service branch, where the relevant accounting entries are passed for inter-branch reconciliation. Banks have had to therefore computerize the operations of nearly 90 percent of the service branches.

The development and use of communication networks has also helped the banking industry to gain in terms of improved banking services. Other important developments in the payments area have a bearing on the speed of computerization in banks. Electronic payment products such as Electronic Clearing Service (Credit and Debit) are becoming increasingly popular with corporate. Nepalese commercial Bank responding to the needs of business entities has been offering different computerized products. Any Branch Banking System is available in most of the commercial banks of Nepal. The number of corporate institutions availing the ABBS service has been increased. The scopes of widening its coverage further seems be very substantial.

2.1.7. Electronic Banking

Basic functions of electronic banking, is not quite different from that of traditional functions of banks like accepting deposits, lending and other ancillary and agency services. Only the difference in the electronic banking is delivering banking services through the medium of IT, ICT technology and virtual/communication network of these technologies.

2.1.7.1. Channels of electronic banking:

According to the current electronic banking service availability, the channels of electronic banking are as following.

-) Automated Teller Machines (ATM)
-) Point of Sales (POS)
-) Telephone banking (Tele Banking)
-) **Internet Banking**
-) Mobile banking (SMS Banking)

Automated Teller Machines (ATM):

An automated teller machine (ATM) is a computerized telecommunication device that provides the customer of a financial institution with access to financial transaction in a public space without the need for a human clerk of bank teller. On most modern ATMs, the customer are identified inserting the plastic ATM care with the magnetic stripe or a plastic smart card with a chip that contains unique card number and some security

information, such as an expiration date or CVC (CVV). Security is provided to the customer giving personal identification number (PIN).

Point of Sales:

POS mean a retail shop, a checkout counter in shop, or the location where a transaction occurs. More, specifically, the point of sale often refers to the hardware and software used for checkouts the equivalent of electronic cash register. Points of sales systems are used in supermarkets, restaurants, hotels, stadiums and casinos as well as almost any type retail establishments.

Telephone Banking (Tele Banking):

It is service provide by a financial institution, which allows customers to perform transactions over the telephone. Most telephone banking use as automated phone answering machine system with phone keypad response or voice recognition capability. To guarantee security, the customer must first authenticate through a numeric or verbal password or through security questions asked by live representative. With obvious exception of cash withdrawals and deposits, it offers virtually all the features of an ATM.: account balance information list of latest transactions, electronic bill payments, and funds transfer between customer's accounts etc.

Mobile Banking (SMS Banking):

Mobile banking refers to provision and accessibility of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities of performing balance checks, account transactions, payments etc. via a mobile device such as a mobile phone. Mobile banking today is most often performed via, SMS or the Mobile Internet but can also use special program downloaded to mobile device.

Internet Banking:

Internet banking also is a channel of providing banking services through the Internet facilities. It allows customers to conduct financial transactions on secure website operated by their retail or virtual Bank and credit unions. Online banking solutions have many

features and capabilities. Such as account to account transfer of funds, paying a bill wire transfer and applications, apply for loan, new account etc. and non-transactional facilities like getting Bank statements over the Internet. In the developed countries like US and other European countries, Internet Banking has become so popular that nearly half of the banking consumers are now using Internet for their banking transactions and the trend is slowly appearing even in the south Asian nations. Further more, the development of Internet and World Wide Web pages have made it possible for the operation of virtual banks.

2.1.7.2. Instruments used in Electronic banking:

Credit Card:

Credit card provide facility and freedom to rent cars, reserve hotels, book vacations, pay bills and shop everywhere the card is accepted without checks and currencies. In Nepal this facility is provided by only five commercial Banks i.e. Standard Chattered Bank Ltd. NABIL Bank, Nepal Investment Bank Ltd., Laxmi Bank Ltd. and Himalayan Bank Ltd.

Wired Plastic Cards:

It lets you set your own limits by pre-funding the amount you need to spend. Unlike other cards there are no annual fees, no transactions fees, no interest charges of debt to repay, no reload fees. Get the prestige and purchasing power of your own wired plastic card.

Plastic Master Card:

This card is not available in Nepal. Master Card is one of the most popular instruments of online banking as it can be used in most of the online payment all round the world.

Advanta Computer Card:

Business can apply for the Advanta Platinum Business MasterCard and earn rebates on computer equipment and other electronics products. Some features of this card are great introductory rate, high credit limit and a customized card with the consumer's business name. This card is not available in Nepal and has a great opportunity to the growing IT markets.

Visa Electron Debit Card:

Nepal Investment Bank Ltd. Nepal introduced this card. It is different from Credit Card, to use this card you have to open an account with the Bank and you use the card up to your minimum balance imposed by the Bank.

2.1.7.3. History of electronic banking in Nepal:

History of electronic banking in Nepal is not much long and the short history of the service has been outlined as following:

➤ Evolution of Banking

-) Banking started in Nepal in 1937 by "Nepal Bank Limited"(Government Sector)

➤ Evolution of Joint Venture (JV) Banks and e-Banking

-) Establishment of first Joint Venture Bank, Nepal Arab Bank Limited (now NABIL Bank), in 1984.
-) Introduction of Credit Cards in Nepal in early 1990 (NABIL bank)
-) Automated Teller Machine (ATM) was first introduced by another JV Bank, Himalayan Bank Ltd, in 1995
-) Himalayan Bank Ltd. was also the first bank to introduce Tele-banking (Telephone Banking) in Nepal.

➤ Major milestones

-) Evolution of Joint Venture Bank in Nepal (NABIL Bank) in 1984.
-) Introduction of Credit Cards in 1980.
-) Establishment of first ISP I 1994 (Mercantile Office System)
-) First ATM lunched by Himalayan Bank Ltd, in 1995.
-) Himalayan Bank Ltd introduced Tele-Banking facility in 1997.
-) Formulation of IT policy in 2000.
-) Evolution of private Sector Bank (Kumari Bank) in Nepal, in 2001.
-) **Kumari Bank first introduced Internet Banking in 2002.**
-) SMS-Banking (mobile banking) was launched by Kumari Bank in 2004.

-) Electronic Transaction and Digital Signature ACT (revised in 2005, yet to be brought in practice).

2.1.8. Internet Banking

Internet Banking is an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick and mortar institution. The following terms all refer to one form or another of electronic banking; personal computer banking (PC) banking, Internet Banking, virtual banking, online banking, home banking, remote electronic banking and phone banking. PC banking and Internet or online banking is the most frequently used designations. It should be noted; however, that the terms used to describe the various types of electronic banking are often is used interchangeably.

2.1.8.1. Introduction of Internet Banking and its History

Internet banking, sometimes called online banking, is an outgrowth of PC banking. Internet banking uses the Internet as the delivery channel by which to conduct banking activity, for example, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages and purchasing financial instruments and certificates of deposit. An Internet banking customer accesses his or her accounts from browser- software that runs Internet banking programs resident on the Bank's World Wide Web server, not on the user's PC. Net Banker defines a "true Internet Bank" as one that provides account balances and some transactional capabilities to retail customer over the World Wide Web. Internet banks are also known as virtual, cyber, net interactive or web banks.

To date, more banks have established an advertising presence on the Internet- primarily in the form of informational or interactive web sites- than have created transactional web sites. However, a number of banks that do not yet offer transactional Internet banking services have indicated on their sites that they will offer such banking services in the near future. Although Internet banks offer many of the same services as traditional brick-and-mortar banks do, analysts view Internet banking as a means of retaining increasingly sophisticated customers of developing a new customer base and of capturing a greater

share of depositor assets. A typical Internet Bank site specifies the types of transactions offered in the site and provides information about account security.

As Internet banks generally have lower operational and transactional costs than do traditional brick-and-mortar banks, they are often able to offer low-cost checking and high-yield Certificates of deposit. Internet banking is not limited to a physical site; some Internet banks exist without physical branches, for example, Tele Bank (Arlington, Virginia) and Banker (UK). Further, in some cases, web banks are not restricted to conducting transactions within national borders and have the ability to make transactions involving large amounts of assets instantaneously. According to industry analysts, electronic banking provides a variety of attractive possibilities from remote account access, including:

-) Availability of inquiry and transaction services around the clock;
-) Worldwide connectivity
-) Easy access to transaction data, both recent and historical and
-) "Direct customer control of international movement of funds without intermediation of financial institutions in customer's jurisdiction."

This is basically the banking industry's attempt to jump to the "e-business" band wagon. Internet Banking is a term that attempts to broadly describe today's alternate delivery channel. Different banks and vendors will describe this differently, but if you are using online banking, you can certainly say that you are "into" Internet banking.

Historical Background of Internet banking is not much long. We can find that older banking practice of manual processing and hard cash/paper based banking first started to shifting to the modern electronic technology since 1950 when the Bank of America asked SRI to assess the possibility of developing electronic computers that could take over the labor intensive banking tasks of handling checks and accounts. The 50 plus year old project briefly described here provided vision of what business could expect from the application of data processing machines. In 1959, Bank of America ordered the General Electric Corporation to manufacture the production model of ERMA (Electronic

Recording Method of Accounting). General electronic delivered the first 32 ERMA computing system to the Bank of America in the same year. ERMA served as the Bank's accounting computer and check handling system until 1970. Most difficult task to be solved in the fully functional electronic banking machine was enabling the machine to read the necessary documents. Breakthrough on this problem came with the development of techniques of reading the magnetically printed characters in a black ink containing particles of a magnetically oxide. Because the reading elements are sensitive only with the magnetized ink, subsequent overprinting or visual obliteration has no effect on the machine's ability to read. And the techniques were called MICR (Magnetic Ink Character Reader). Only this technology made possible for the development of today's modern plastic money like Debit and Credit card and ATMs. That's when the real history of electronic banking began with the development of ERMA and MICR technology. The electronic banking gave the vision of paperless banking and then bankers and IT specialist began to generate ideas of using Internet as the most effective channel of banking. Now, with the invention of modern personal computers and World Wide Web, the Internet banking and virtual banking is taking the place of old banking system since mid-nineties. Concept of going online and providing banking services through Internet actually started from the 80's with the invention and popularity of personal computer and Internet technology. But the dream turn into reality only after the establishment of Security First Network Bank (SFNB) as world's first totally functional Internet Bank in October 18, 1995 in the United States. And the same concept of internet banking has made possible for today's 24 hours, 7 days a week and 365 days banking from anywhere and any branch banking facilities.

2.1.8.2 Overview of Internet Banking

The tremendous advances in technology and the forceful infusion of information technology had brought in a paradigm shift in the banking operation. Internet banking that has revolutionized the banking industries worldwide has turned out to be the core issue of various studies all over the world. However there has constantly been a literature gap on the issue in Nepal. The aim of research is to help and fill significant gaps in knowledge about the Internet banking background in Nepal.

Technology plays a key role in current markets. Diverse technological innovations are significantly changing how services are provided in different sectors (Bitner, Brown and Meuter, 2000). In this regard new digital and Internet-related technologies are substantially modifying how companies, employees and customers interact services encounters (Alba et al, 1997; Hoffman and novak 1996).

The Internet is globally widespread in use, becoming an integral part of IT within business as well as many homes. A vast market has developed on the Internet, online purchasing and banking have been by-products of this growth. Many businesses have been quick to recognize and exploit this niche. The range of products that can be purchased on-line is virtually inexhaustible and puts the Internet at the top on the list of convenience goods, alongside readymade meals. In this rapidly evolving modern society of which we are all a part, convenience has become crucial to survive the ever-increasing pace of life. Therefore the development of this phenomenon has been welcomed by supporters of this technology; however that does not necessarily mean that these practices have been widely accepted and implemented into all our lives.

Information technology revolution is changing the way the banking business is done everywhere. The banking industry has not only kept pace with technological developments but has also forced the computer industry to continuously keep pace and innovate products to suit its needs. In developed countries, computer based banking was introduced in early 1970s. technological innovations in the banking industry have converted paper checks into electronic checks, telex advice into electronics advice, signature card album into magnetic spots on discs, telegraphic transfer into electronic transfer and so on.

With the introduction of Internet, the changes in the field of banking started with banks hosting their websites. These websites used to provide details about the products being offered by the Bank and other information about the Bank such as the interest rate, board of directors, financial highlights, etc. The website used to act like a promotional channel for the banks. In the early days of Internet banking, many organizations rushed to provide Internet based services in order to gain competitive advantage. The Internet only online Bank egg was one of the first success stories, whose perceived threat spurred the larger

high street Bank on to create their own Internet banking services (Goldfinger, 2002). Now, with so many high street retail banks having an online presence – not to mention the online only banks – just providing an Internet banking services will not offer any real advantage over competitors.

2.1.8.3. Internet Banking in Nepal

Each day new developments are taking place in Information Technology (IT) corridor throughout the world. Such developments are also taking place in the system of banking. A Bank, in this age, will not be able to survive without providing Internet as alternate services to the customers. The application of the latest technology on a continuous basis is going to mark the difference between a successful Bank and a failure.

Nepal undoubtedly lags far behind, but IT revolution even in this landlocked country has begun to set in. The notable changes are slowly being visible in transactions in the capital. The Internet users represent a 0.004 percent of the total population of the country and the number of Internet users is less than 8 percents of the population of the Kathmandu district. Only 38% of the Bank branches are located in urban areas. The ratio of a fully computerized branch is still very low. This means that there is a lot of scope in Nepal for the automation of the banking industry. With the introduction of the Internet changes in the field of banking has started with some banks hosting websites. Banking websites are developed by banks to provide details about the products being offered by the banks and other information about the Bank such as the interest rate, board of directors and financial highlights. At present websites in Nepal are used for promotional purposes rather than providing more flexible services to the customers. However, Nepal still lacks the required sound infrastructure in the IT sector to take a wider step towards e-business.

With the gaining popularity of Tele banking, banks opted to use their websites for things other than dissemination of information. This gave rise to Internet banking. Internet baking started with the basic banking transaction being conducted on the Internet. Checking of account balance, ordering a check book, etc. were few of the basic transactions that got digitalized. Banks have now realized the offering the basic services

on the Internet is not enough. The customers are becoming more and more amenable to transacting their business over the Internet. Grabbing this opportunity, many banks have started offering a number of unique services to their clients. For example, some banks offer the facility of making loan applications over the Internet. Bills can now be paid online, accounts can be opened, fund transfers made, etc.

The effect of all these changes in that transparency in banking transactions has increased tremendously. The process of collecting and comparing the costs to arrive at the best rate offered becomes very simple and quick. It also becomes impossible for the Banks to overprice their services.

Electronics marketplaces and vertical portals can be a great tool to attract the customers as well as the Internet can also be used to create closed extranets to facilitate communication and cooperation between relatively stable business partners. Similarly, connecting the appropriate people in each of these organizations with these web portals would no doubt increase production and logistic efficiency. This provides the customer with website for querying inventory status, ordering, scheduling and tracking shipments which provides greater returns. The Internet has geared up competition among banks. This factor has forced the banks to change the concept of banking and concentrate more on the operational cut cost side rather than the revenue increase side for improving their profits.

The initiation taken some years back through the opening of online shopping websites, and the launching of some more recently, are steps that will lead Nepal to the new era of business through IT.

At a time when Nepal lacked required sound infrastructure in IT sector to take wider step towards Internet based business, one of the commercial Bank, Kumari Bank Limited, had set an example by launching Internet based banking services in Nepal that include electronic banking, home banking, Internet banking, ATM and others services to its customers besides deposit, lending, foreign trade and remittance. Online accesses provided by Kumari Bank to the customers are balance enquiry, summary and statement

of all transaction, and location and filtration of transaction date within a selected account. Though the initial offering of the services are limited, it is a positive step towards exploring the potential of e-commerce in the country. It was stated in a press release issued by KBL, account holder can receive balance information and mini statement at their own mobile through SMS. Under this scheme, one should have cellular mobile phone and saving accounts with the Bank to get alert messages about over withdrawal or deposit or salary transfer. KBL have arranged to send SMS to those customers who want to have this service free of cost. KBL is also first commercial Bank in the country to provide "Internet Banking Services".

However the concept may be to some extent blighted by the unorganized sector through which a chunk of personal credit is covered. More than 80% of flows of personal credits are taken place through the informal sector that comprises local moneylenders, relatives and friends. With banking habit of the individuals very low, the banking habit of the residents increase significantly, not much can however be expected for a leap in e-commerce, where Internet banking is a basic requirement. The Internet users represent a mere 0.004 percent of the total population. Assuming that a majority of the Internet users are in Kathmandu, The number of Internet users is less than 8 percent of the population of the Kathmandu district. Internet banking deals with the internal business comprising the payments and the deliver of the products would grow in the significantly after the growth of banking habit only.

2.1.8.4. Internet Banking Pitfalls:

Today the main problem banks are facing for getting the immense popularity by providing the Internet banking facility is the lack of computer literate people. People in Nepal not even have properly developed the banking habits, let alone using the E-banking facilities. Most people are not aware of ongoing changes around the world. Since this service is completely new for the Nepalese customers, the Bank believes that it is quite difficult to gather as many customer as it can be possible. Many customers lack awareness. And the very little portion of the total population has access to the Internet facilities. And few of those who are aware of these changes are also reluctant to go for the Internet banking as this facility has just been started in Nepal. They want physical

presence i.e. they do not want to take a risk by performing their transaction without their physical presence. Also many customers believe that Internet cost is too heavy. They cannot bear the Internet cost and would like to visit the Bank instead. The Bank also has to bear the technical difficulties in terms of computer hardware. Apart from the above difficulties, followings are the problems of Internet banking.

1. Operational Risk:

The quality of the software, its potential is one of the main pitfalls of the Internet banking. The security must be maintained. Operational risks may arise through the misconduct of the customers and the development of software and software used.

a. Security risk:

Because of the development of the technology different access points have hindrance to establish proper security system. Professionals hackers can spread the viruses in the computer and can interchange the account status creating the liability to the Bankers.

b. Software design risk:

The Bank uses the software made by the outsource people or agency. They can not develop the software themselves. Any problems in the software they have to depend upon the outsourced people or agency for maintenance. Besides the Bank's software may not be the same as that of the customers. In this condition the customers may not be able to get internet banking services from the bank. Sometimes it may take a long time for Bank to upgrade the system software; the result is that the customers would not get Internet banking services.

2. Reputation Risk:

If the system doesn't work in accordance with the customers' perception, the reputation risk arises. If the Bank can not solve the problem arising from the operation of the Internet banking to the customers, hackers continuously hack the banking system, spread the viruses to the system, information cracking from the Bank, then the customer will not believe in the Bank operation.

3. Legal risk:

If the rules and regulation or terms and conditions for the use of Internet banking can not be applied, the legal risk arises. In the context of Nepal, the operation of the Internet banking had been started but government and the Rastriya Banijya Bank had not formulated any kind of the law, policies regarding the Internet banking operation, responsibility and authority. Besides that, the law prevailing in one country may not be same as in another country, which is also the cause of Legal risk.

4. Cross border risk:

Different countries have their own policies and laws of Internet banking. The mismatch between the laws of different countries creates the cross border risk. If the service providers of the cross border countries refuse to perform their obligations, loss is incurred and the recovery may not possible due to the different law prevailing in that country.

5. Other risk:

The traditional risks are also associated with operation on Internet banking such as:

a. Credit risk: In the process of providing services to the people all over the world, loan given the remote banking process may create credit risk. Banks using electronic bill payment may face the credit risk if the customer doesn't pay the amount to the Bank.

b. Liquidity risk: No ability to pay the money in time creates liquidity risk. The promise of the Bank to pay the money in time, and if sufficient cash is not maintained in the Bank in time of payment, the liquidity risk arises. Huge money transfer may also create liquidity risk.

c. Interest rate risk: The inverse movement of the interest rate to the Bank creates the interest rate risk to the Bank.

d. Market risk: Change of the prices in the market and the change in the foreign exchange rate also create the market risk to the Banking operation in the concerned area.

The Bank believes that since the Internet banking service is the new concept for the Nepalese customer, it might take time to gather more customers.

2.1.9. E-commerce

This is the 21st century world where we are able to work from our room for people living in another corner of the world just staying ahead of the net connected computer with salable skills all around the world. Integration of economies has already begun with the more free and barrier less trade and commerce. Information and communication technology has made the globe like a small village and globalization process is on. Traditional social inter relation process, mediums, trading process and system are also being replaced by the virtual world created by vast network of information and communication technology. This is how new medium of trade and commercial practice has emerged and this new phenomenon is called **E-commerce**.

E-commerce is nothing but such a value added act of buying and selling of goods and services through electronic channels, especially by using the Internet. The scope of e-commerce is such that, huge percent of the total sales in the world will be electronically processed this year as projected by Forester research Inc. and Nepal can not afford to sit back and watch this opportunity go by. However, development of e-commerce rests on the e-readiness. E-readiness refers to a country's ability to take advantage of Internet as an engine of economic growth and human development. It also takes account of how a prevalent e-business practice is in each country and is ready to automate its traditional business practices through the Internet. But in the context of Nepal, most Internet businesses are confined to Kathmandu valley. Nepal's information communication and technologies (ICT) status to some extent stands with the tele density of about 7.77 percent according to Nepal Telecom's statistics and data. Nonetheless, the country's present sluggish business environment bleak-socio cultural status and poor e-literacy have not contributed much to the e-readiness of the country. This affects e-business, which depends on the technical skill of the workforce. Now notable practice of e-business has increased and most of the ICT companies are registered by commercial houses with the introduction of .np domain name. The new practices of 'e-gifting' and "e-remittance" are the latest in e-business. Such practices of business to consumer through e-commerce

illustrate growing comfort among consumers. However the e-market size is still very limited. The banking industry that is booming every year is looking forward to implementing e-banking to provide swift services. Despite such interests, the biggest constraint for a full-fledged e-commerce operation is lack of strong cyber-law and other supporting laws.

First ever cyber law of Nepal was enacted recently. The act itself is a landmark of its kind and opens the door for wider e-commerce activities to take off officially in the near future. Whether the act reflects the framework of "model Law on e-commerce" adopted by the "UN commission on International Trade Law" will also determine future e-commerce growth, as we want to explore e-market internationally without complications. For e-commerce to contribute to the country's economy, all the laws regulating the e-commerce activities should comply international monetary and regulations via net. The threat of cyber crime is another immediate and imminent concern though quite a few cases in Nepal. The repercussion of this will be noticed while dealing with digital signatures involving cryptography that we need to carry out homework before we jump into e-commerce. E-commerce and e-readiness compliment each other in the development process of a country's e-economy. Despite of Nepal's e-readiness being very low at the scale of 0-9 according to ITC, the enthusiasm and willingness to use ICT as a tool to explore business as whole will prove to be a significant step towards modernization of economic reforms in the country. The challenges today are how best optimize the sub-standard, yet promising e-readiness to the country to prosperous e-commerce market in the future.

With so-called Information Technology (IT) revolution in the globe, Nepal is also witnessing a myriad of cyber activities both at private and government levels. Nepal entered in the cyber world in the late 70s. Private sector and joint ventures took a lead role to the development of IT. The government formulated IT policy eight years ago, putting forth its various agenda to develop IT and manipulate the latest IT discoveries for the overall development endeavors. However, the government has not introduced the supporting act and regulations essential to boost e-commerce and e-governance. After a repeated call by the IT entrepreneurs, professionals and planners to introduce the Cyber

Act, the government finally decided to introduce Electronic Transactions Digital Signature Act-2063, also known as Cyber Law.

E-commerce offers a number of advantages; increases in productivity; cost saving streamlining of business and opening new markets, among others. In e-commerce, time required for transferring a business transaction between the trading partners is significantly reduced. Human errors and other problems like duplication of records are largely eliminated with the reduction of data-entry and re-entry in the process. This improvement in speed and accuracy, plus easier access to documents and information has resulted in increased productivity. E-commerce is highly cost saving. According to report by Giga information group, conducting business online contributed for saving of companies around the world as estimated US \$1.25 trillion in 2002 because efficient communication, quicker turnaround time and easier access to market. As Internet destroyed notion of space and time because of 24-hours computer driven system, business companies provide fast services to the clients, who can enjoy the convenience of shopping at any hours anywhere in the world. Another important benefit of the e-commerce is the expansion of market. It enables the trading organizations to interact with new and different suppliers and customers. Small and medium enterprises have endless possibilities to enter into the export market, which can not be supported by the local or national markets. Once Nepal adopts these new opportunities and innovations offered by the IT, services based industries would burgeon, thereby reducing its dependency on agriculture based industry. Over the last decade, manufacturing and service-based industries have increased and contributed in the national income. A significant amount of foreign currency now comes from the service sector. The export sector that deals with carpet, handicraft and pashmina can benefit from the use of e-commerce. Tourism industry a reliable sector to earn foreign currency and foreign direct investment is required for developing infrastructure. It also lacks clear provision on the validity of international signature. The government should coordinate among different line ministries to encourage the usage of IT by implementing pragmatic fiscal as well as monetary regulations and providing incentives, tax holiday, tax exemption and reducing tax burdens. The government should come up with innovative ideas to involve the private sector to boost the cyber industry. There is an excess of liquidity in the banks, as the

entrepreneurs do not know where to invest due to the political instability. The effective implementation of the ACT will attract the investor in the IT sector and it will increase the importance of transaction through online banking.

This concept of e-commerce has also brought a new change to the financial sector as well. With the advent of Internet, banking services are now accessible through the online technology, which is called **Internet Banking**.

2.2. Empirical Review

Internet banking is relatively new concept in Nepal. Sufficient literatures are not available. So, attempts to review available studies have been done in this section. As this is a new concept, most of the example data has been taken from International Banking practice.

In the United States, virtually all had some sort of telephone banking services already. Industry leader New York-based Citibank, which has been plugging along on home banking for 20 years, is believed to have signed in about more than 250000 consumers for its online banking program at least three-fourth of those have signed in since 1995, when Citibank eliminated its fee from home banking services.

In Nepal Kumari Bank is known to be the first Bank to offer Internet Banking. Now around 20 banks are offering Internet banking out of 31 commercial banks and they are already using some sort of online features like ATM, anywhere branch banking (ABBS), Tele banking etc. some of the newly established banks like Kumari Bank and Machhapuchhre Bank are using sophisticated software like Globus System, it supports full fledged Internet banking.

Security First Network bank is the first standard Bank in the online home banking. Now, there are number of virtual banks without physical existence. Internet banking systems allow customers to plug into a host of banking services from a personal computer over the telephone wires. The convenience can be compelling. Not only are the travel

time reduced, ATM machines, telephone banking or banking by mail is often unnecessary. Technology makes the banking so easier. Virtually all of the banks that offer electronic services allow consumers to check the balances in their accounts, transfer funds among accounts and order electronic bill payments. More sophisticated systems allow customers to apply for loans, download information about accounts into their own computers, trade stocks or mutual funds and look at images of their checks and deposits slips.

2.2.1. Review of articles

Monica Parzinger, Paul Schrick & Ravi Nath (2001) have mentioned that the purpose of this research was to gauge perceptions of banks regarding the strategic and operational value of web-based banking, its benefits to customers and banks, and the key technology considerations. The results show that Internet banking is in its nascent stage--only a small number of banks offer web-based banking to customers and the full benefits of Internet banking are still to be realized by many banks. On the other hand, a significant number of the banks believe that providing these services to customers in the new economy is essential for survival and thus, mandatory. Respondents felt that banks not providing e-transaction capabilities would lose customers to competitors who offer such services. This perception is supported by the fact that a large percentage of the banks who currently do not offer web-based banking plan to do so in the near future. Another benefit of Internet banking was the impression it gave to the public of a cutting-edge bank, thereby enhancing its reputation. This study also showed that e-banks are not perceived as a threat by many bricks-and mortar banks. In fact, most e-banks are attempting to form alliances and partnerships with banks, financial institutions, and other businesses with physical presence in order to provide services that cannot be delivered on the web alone (e.g., cash withdrawals, effective customer service) (Business Week, 2000). For example, National Interbank is planning on partnering with Mail Boxes etc. to allow its customers to drop off deposits at any of the 3,400 Mail Boxes etc. Given this trend, banks that do not offer Internet banking should quickly move towards Integrating web-based services into their existing business models and channels. From an operational perspective, this research indicated that banks with web-based banking realized significant benefits. First, e-transactions significantly lower the cost per transaction and thus contribute to the

bottom line of the bank. Second, Internet banking allows banks to offer ancillary services such as insurance, brokerage services,

and mortgage payments through their web site. Such services are offered either directly or through a partner firm. Revenues generated from these services are an added bonus to the bank. Third, successful launch of an e-commerce site improves service quality as the customer is presented with several options (Internet, in person, ATM, phone, interactive voice response, etc.) to transact with the bank. These options can result in an increased number of customer accounts. Internet banking allows customers to conduct certain transactions (e.g., checking balances, funds transfers, bill payment, etc.) online at anytime and thus it reduces the number of physical visits to a bank. This added convenience to the customer lowers transaction costs to the bank--a win-win proposition for the bank and its customers. This study also suggests that a majority of the banks sampled were concerned about a reduction in customers' trust in the bank and a degradation in the customer-banker relationship as a result of Internet banking. This finding is contrary to what some experts believe are the key benefits of web-based banking--a loyal customer with access to many financial services that are bundled together on the web site. A possible explanation for this apparent contradiction might be the fact that Internet banking is still in its infancy and the realization of its full potential will take time. Areas where there is cause for concern are the security of Internet transactions. In light of the fact that many online retailers' web sites have been attacked by hackers, security and confidentiality must remain a paramount concern of banks and customers alike. Technologically, implementing web-based banking so that it is transparent to the enduser (customer) is challenging. Careful planning is a prerequisite, if full benefits are to be realized. For example, even after the web site is launched, provisions for online help have to be made so that customer e-mails and other inquiries are handled expeditiously and with care. Compounding this issue is the fact that there is a dearth of qualified technology and business savvy individuals to run e-commerce operations. Such paucity hinders the ability of many banks to launch web-banking unless they decide to outsource these operations. In sum, banks are embracing e-commerce--albeit slowly. They appear to realize the

potential of this profound change and do not want to be left behind. Banks are cognizant of the strategic and operational value of the Internet as an effective channel

and seem to realize that the benefits outweigh the costs. However, they have a variety of concerns ranging from security to the integration of the Internet channel with existing business processes and systems. Despite these concerns, in the future, banks will have to include web-based services in their portfolio of offerings to customers or else risk losing customers to banks that do.

Troy J. Strader & Anthony R. Hendrickson has stated that the Internet and Web provide an infrastructure that enables buyers and sellers to find each other online. Companies now have a new sales channel for their products and services, and numerous electronic markets are available for buying and selling at offer prices or through various auction mechanisms. Early studies of electronic markets took a simplistic view of consumers as economic agents whose behavior was guided by a search for the lowest cost transactions. While this view is sufficient for identifying some of the explanations for the growth of electronic markets, consumer behavior in these markets cannot be completely understood by economic analysis alone. The papers published in this issue were originally presented at the 2000 Americas Conference on Information Systems (AMCIS) in Long Beach, California. They represent the best papers from the Marketing and Consumer Behavior in Electronic Markets mini-track. Each paper addresses consumer behavior issues that are relevant to identifying better ways to design commercial Web sites. The issues addressed by these studies are important for several reasons. The Internet and Web provide significant new tools for marketing, there is tremendous growth and opportunity in electronic commerce, and companies are having a difficult time identifying their target market and how they can design their digital storefront to attract and retain these potential online customers. A number of conclusions can be drawn from the current state of electronic market activity and research. The Web is an effective tool for marketing that reduces many costs and enables enhanced communications and relationships between companies and their customers. Because of

this, advertising and sales revenues will continue to grow for some time in many industries.

There is tremendous opportunity because online advertising and retail sales are still a small percentage of traditional advertising and retail sales. And because electronic markets provide an effective new sales channel, and their use is expected to continue growing, there are an endless number of research issues that must be addressed to understand how to effectively compete in these new marketplaces. The implications for companies are that they must identify their online customers and design their online strategy to attempt to differentiate themselves from their competitors in this highly competitive market. The implications for researchers are that there are more questions than answers, but there are some published articles to provide a starting point. In particular, it seems that demographics alone does not predict online buying so more complex psychological and sociological issues must be addressed such as the factors that affect consumer willingness to buy online, use of the online channel for information search, and actual online purchase behavior.

Surendra Bhandari (CEO, Kumari Bank Ltd.), emphasized electronic banking is the wave of the future. It provides enormous benefit to the Bank and consumer in terms of ease and cost of transaction. Some of the banks in Nepal have already initiated in this direction. Continuous technology innovation and up-gradation among local banks have allowed for much wider array of banking products and services to become accessible and delivered to retail and wholesale customers through an electronic distribution channel.

The channels in electronics banking available in Nepal are as follows:

-) Automated Teller Machine (ATM)
-) Debit cards
-) Credit cards
-) Tele banking
-) Remote banking
-) **Internet banking**
-) Any-branch banking

Of all the E-banking products Internet banking has been the most momentous development of E-banking in Nepal. It is more complex and varied than any other products. It represents new era of banking. Has transformed the dynamics of banking, has opened new vistas for business that never existed, allowed for integrated customized services and superior cost efficiencies relative to any currently available distribution channels.

In another research report by a banker **Prabal Khanal** on his research study, "**Online Banking in Nepal**" he states that history of E-banking started with the introduction of credit card and ATMs by NABIL Bank and Himalayan Bank in 1990 and 1995 respectively. According to his study **Internet Banking** was started in Nepal in 2002 by **Kumari Bank** and another commercial **Laxmi Bank** started SMS banking and mobile banking in 2004. His studies found that there were 46 ATMs and 2000 POS till 2005. He has shown in his study that out of 17 commercial banks 15 banks were providing ATM services for cash withdrawals and balance inquiry, 10 banks were providing SMS banking services, 5 banks were providing Tele banking and IB with limited functionality. He further pointed out about the statistics of Internet users and it was around 200000 till that period, 95% of them were using dial-up, 50% of the Internet users were from the Kathmandu Valley and there were 3000 Internet banking users. In his study also, he focused on the security of the banking transactions as the main hurdle in the way of full fledged online banking in Nepal. According to the research, all the banks providing online banking at that time had the security system like password controlled system entry; international certification as secure websites for electronic transactions called **VeriSign** issued digital ID for Bank's website, secure socket layer (SSL) protocol for data encryption and Firewall setup.

Highlighting the future of E-banking in Nepal he says in his report E-banking makes possible cash less transactions and people even from remote areas can have access to the banking services and make financial transactions via Bank at minimum cost and short

time. People will have more choice of banking services like SMS banking, Tele banking and through online banking people can have global connection, they can mobilize their fund in the foreign country and they can have access to banking services from anywhere in the world 24 hours.

Vivek S. Rana (Chief of IT/MIS of Nepal Bank -2004) also has presented the different aspects of E-banking in Nepal in his research study, "**Banking and E-Payment Practice in Nepal**". Specifying the need of E-Payment in his study he has stated that servicing globally using local competitiveness, lower transaction cost, fast and efficient services and new business synergies need e-payment mechanism.

According to him major challenges for e-banking in Nepal are unequal and very limited Internet access to the mass people, low literacy rate on IT, hesitation in the both business and consumer sides to go for electronic dealing and transactions. His study recommends that there is no longer choice of e-commerce as the forces of globalization has made one world and one economy and cost of being left out are permanent sentence to isolation and marginalization and there are enormous benefits and risks in joining the global economy but the greatest of all is the risk of not participating in it.

2.2.2. Review of thesis works

According to research study by **Nanda Kumar Rana Magar (2008)** on his thesis study, "**Internet Banking in Nepal**" he found in his survey that most of the commercial banks were found to be attracted towards Internet banking by the motivational factors like fast banking processing, cost effectiveness, modern consumers' demand and easy accessibility to mass consumers through Internet banking.

The main objectives of his study were:

-) To study and explore the drivers and inhibitors for customers adopting Internet banking in Nepal.
-) To examine drivers for banks adopting Internet banking in Nepal.
-) To evaluate present status of Internet banking in Nepal.
-) To highlight the prospects of Internet banking in Nepal.
-) To suggest and recommend on the basis of major findings.

The major **findings** of his study were:

-) 82% of the customers surveyed found to be dissatisfied with the old banking process. This means majority of the Bank consumers were looking for fast and convenient banking channel.
-) **Time** and **convenience** were found the most important difficulties with the traditional banking.
-) When studying the Internet and IB habit of customers, 93% of them found to have been using Internet and 31% were already using Internet banking. Similarly, 82.86% consumers were interested in using IB in the future. This study result shows that there is bright future of IB in Nepal.
-) Most of the commercial banks were providing Bank statement inquiry, check book order, payment stay order services and they were preparing to provide other IB services like online fund transfer and online bill payment through Internet.
-) Major inhibiting factors for consumers adopting IB are found be security of IB, privacy of IB and not providing training to use IB.
-) Driving factors for banks adopting IB are found to be fast banking processing, cost effectiveness, modern customers' demand and easy accessibility to mass consumers through IB.
-) Security from hacking of vital banking information, lack of computer knowledge and very low Internet access in Nepal were the most important difficulties of IB in Nepal.

On the study of **Mr. Devendra Thapa** (2003) about "**Future Prospective of Online Banking in Nepal**", he aims to examine the future feasibility of the online banking services in Nepal.

The main objectives of his study were:

-) To find out opportunities of the online banking in the context of Nepalese commercial Bank.
-) To find out the security threats on online banking system.
-) To find out the advantages of online banking to the Nepalese people.
-) To suggest measures to improve the IT policy regarding online banking.

The major findings of his study were:

-) Out of 300 people surveyed only 5% people were satisfied with traditional banking system.
-) Time was the main problem for 95% of the surveyed people.
-) Opinion of the 95% people surveyed were in favor of fully functional online banking.
-) The study also showed that only 50% of the surveyed people practically used the online banking.
-) 99% of them were fully aware about the online banking like ATM, ABBS and Tele banking.
-) At that time SWIFT was the only service, which was used by all the commercial banks while debit, and credit card facility was given by only some Bank till that date. Out of 17 banks, 9 of them were using ABBS system.

The researcher found that the most important factor to online banking users surveyed was the overall security of their money. Those who responded to the survey also highlighted privacy, cost, convenience and access to financial information as key components to using online banking.

There were very few banks using the online banking when the study had conducted by the researcher but now scenario of Nepalese online banking has changed very significantly as banks are making the new frontier of banking services as their competitive tool.

2.3. Research Gap

This study made on Internet banking of Nepal is a new study and no more existing studies made on the topic were found to be reviewed. The study is based on the information collected from the customers and IT officers of the banks unlike other studies that use authentic published financial data of various financial years. The study involves in making a subjective analysis rather than an objective one. As such, research gap analysis could not be made regarding this study about Internet banking in Nepal.

This study incorporates Internet banking system of Himalayan Bank Ltd., NABIL Bank Ltd., Kumari Bank Ltd., Laxmi Bank Ltd. and Nepal Investment Bank Ltd. Information was collected through questionnaires from the customers and IT officers of the respective

banks. Simple statistical tools like percentage and Average have been used in the study to analyze the data collected by the means of questionnaires.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter describes the approach, materials, and procedures of the present study use to analyze the secondary data. Research methodology refers to the systematic and meticulous study and investigation on the particular subject matter. The fundamental purpose of this study is to provide and overview on the Internet banking in Nepal and its

practices of the sampled Bank. This chapter indicates different methods, tools and techniques utilized to present study in simplified and understandable manner.

3.1 Research Design

Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions. The prime objective of this study is to provide and overview on Internet banking in Nepal. This study describes and explores about Internet banking and its implementation by commercial banks in Nepal. So, descriptive, exploratory and analytical methods are combined, as the study demands, for the best result. The research design is thus an integrated frame of exploratory study and descriptive study.

3.2. Population and Sample

There are 31 commercial banks operating in the country. The entire number of commercial banks functioning is the population of the study.

For the analysis of Internet banking in Nepal, out of 31 commercial banks only Laxmi Bank Ltd. has been selected as sample; it is the only one commercial Bank which has been merged with finance company (Hisef Finance). And also it is one of the fastest growing commercial Bank. Within 7 years period, this Bank has become very successful and reputed banks in Nepal.

3.3. Sources of Data and Data Collection Procedure

During the research study, two types of data primary and secondary were used for the collection of required data as per requirement of the study. Primary data is the first hand data collected for study purpose. The primary data have been collected by questionnaire method with the customers and staff of sampled Banks of the study area.

Similarly, other relevant secondary data were collected from the different materials like books and articles on the research topic, published and unpublished research study on the Internet Banking in Nepal, web sites of all commercial banks, data from NRB, study on IT, ICT and Internet Banking by International organizations and researchers. All the

information collected from these secondary sources were analyzed and incorporated to make the study more comprehensive and self-contained.

3.4. Tools and Methods of Analysis

Tools used in the research study:

Relevant statistical tools and financial tools are used to find out the best appropriate outcomes as per designed objectives of the present study. The present research has use mix of following tools in the analysis.

3.4.1. Statistical Tools

Different qualitative and quantitative methods of statistical tools are used for driving essence of the research data and interpret them in meaningful way.

Qualitative Method

- Factor Rating Method

Quantitative Methods

- Arithmetic mean:

The simple or arithmetic average in which all the observations are treated equally, is the sum of all the individual numbers divided by the number of observations.

$$\text{Mean } (\bar{X}) = \frac{X_1 + X_2 + X_3 + \dots + X_n}{n}$$

We have,

$$\bar{X} = \frac{f X}{n}$$

Where,

\bar{X} = Mean Rating of factors

X_1, X_2, X_3 to X_n are given set of observations up to the period n

f = Frequency of the similar Ratings

n = Total no. of Ratings

3.4.2. Financial Tools

Different ratios (liquidity ratio, current ratio etc.), percentages will be used to analyze and interpret the data. But in this research only percentage method has been used to make the study very simple and easily understandable.

CHAPTER FOUR PRESENTATION AND ANALYSIS OF DATA

Data presentation and analysis and interpretation always plays vital role in the research study as this part gives the most important information from the research study. In this chapter all the data collected from different sources are first recorded in a proper manner then they are analyzed and presented using various mathematical, graphic and analytical tools and outcomes are interpreted. This process leads towards the finding of the study according to the set objectives of the study, this chapter has very important role to play and bring the study to a meaningful outcome. During the preparation of this chapter all the information collected from survey and secondary sources recorded and processed using computer programs and then outcomes were analyzed, presented and interpreted.

4.1. Data Presentation

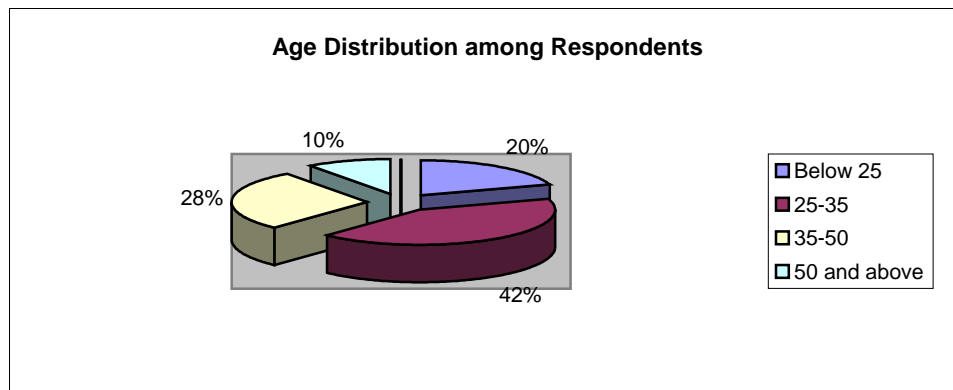
4.1.1. Age Distribution among Respondents

Table No : 1

Age Distribution among Respondents		
Age group	Frequency	Percentage
Below 25	20	20%
25-35	42	42%
35-50	28	28%
Above 50	10	10%
Total	100	100%

The respondents are categorized in four different groups. And 42% of the respondents lies in the age group of 25-35, 28% lies in the age group of 35-50. It shows that the highest percentage of the respondents lies in the age group of 25-50 i.e. 70% (combination of the age group of 25-35 and 35-50).

Figure No : 1 Age Distribution among Respondents



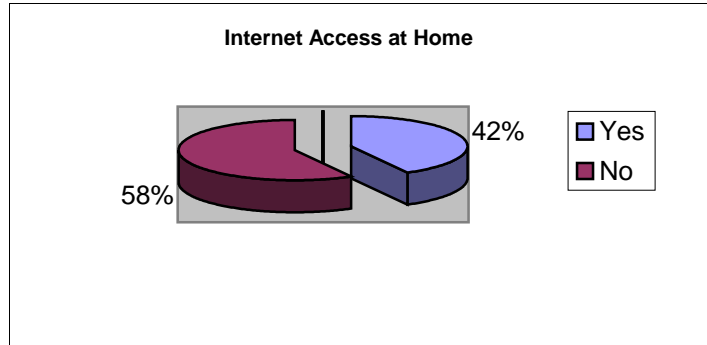
4.1.2. Internet Access

Table No : 2

Internet Access		
Internet Access	Frequency	Percentage
Yes	42	42%
No	58	58%

Most of the respondents do not have Internet access at their home. This shows that customers use Internet from the outside i.e. cyber cafe and office. Therefore the proper Internet access to different part of the valley may be hindrance on using Internet services.

Figure No : 2 Internet Access



4.1.3. Knowledge on Internet Banking

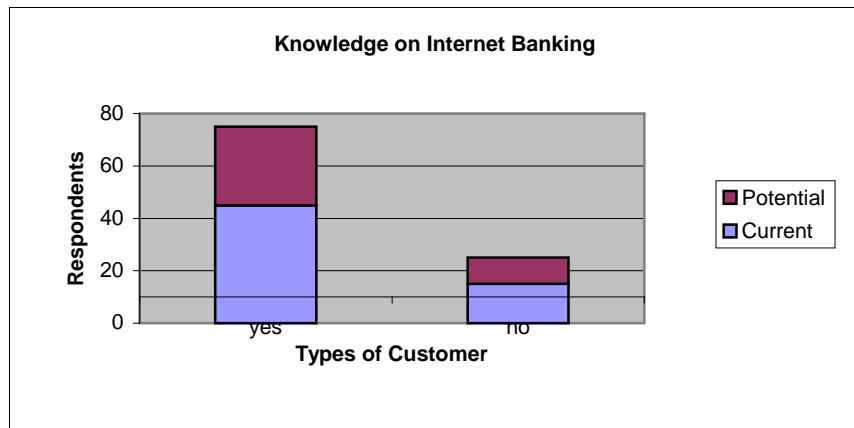
Table No : 3

Knowledge on Internet Banking			
Internet Banking	Current	Potential	Total
Yes	45	30	75
No	15	10	25

Most of the banks customers know about the Internet banking. The knowledge means that they know the banks have been providing online/Internet banking services. They know about Internet banking services but don't have the exactly knowledge on how the whole system works of Internet banking.

Few of the customers i.e. 25 out of 100 respondents don't have any idea of Internet banking services. They are the traditional banking services users and uneducated people who use bank services mostly for deposits and withdrawals.

Figure No : 3 Knowledge on Internet Banking



4.1.4. Internet Banking Users

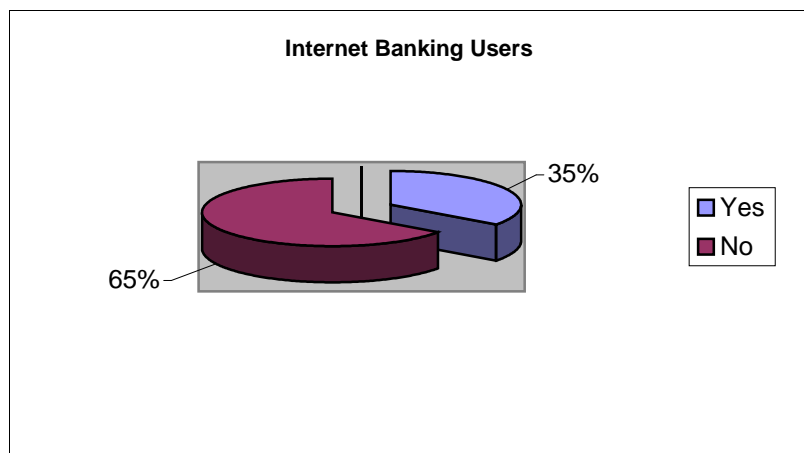
According to the analysis of consumers' perceptions regarding traditional banking, the research has found that consumers are not satisfied with the traditional banking and they were looking for fast and convenient banking services. On the other hand, in the developed world Internet banking is gaining popularity as fast, time saving and very convenient channel of banking. But for the adoption of such techno-savvy banking, consumers' need to be familiar with the modern online and Internet culture. According to objectives of studying present scenario of IB and future prospective of IB in Nepal, the research study also tried to find out online culture in Nepal and use of Internet banking in Nepal. And, research study findings on these aspects are presented in the following tables and figures.

Table No : 4

Internet Banking Users		
Users	Frequency	Percentage
Yes	35	35%
No	65	65%

As found above that only 42% of the respondents use Internet and only 35 out of 100 use Internet banking. It shows percentage of Internet banking users is very less. It may be due to the lack of computer or lack of knowledge on Internet.

Figure No : 4 Internet Banking Users



4.1.5. Use of Bank Services

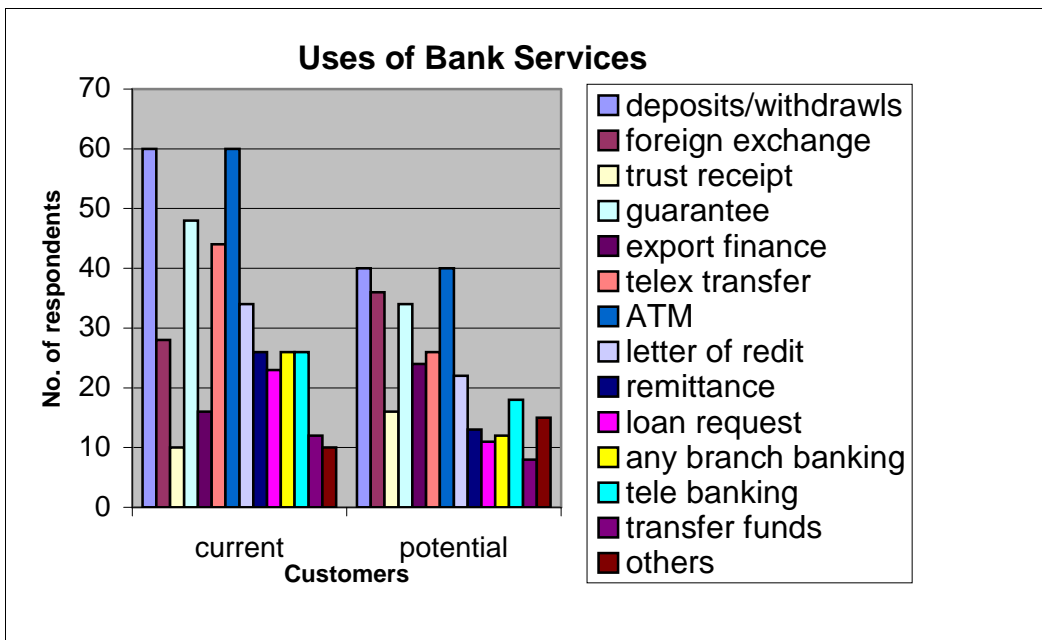
Table No : 5

Use of Bank Services					
Services	Current	Potential	Total	Percentage	
				Current	Potential
Deposits/Withdrawals	60	40	100	100%	100%
Foreign Exchange	28	36	64	47%	90%
Trust Receipt	10	16	26	17%	40%
Guarantee	48	34	82	80%	85%
Export Finance	16	24	40	27%	60%
Telex/ Wire Transfer	44	26	70	73%	65%
ATM	60	40	100	100%	100%
Letter of Credit	34	22	56	57%	55%
Remittance	26	13	39	43%	33%
Loan Request	23	11	34	38%	28%
Any Branch Banking	26	12	38	43%	30%
Tele Banking	26	18	44	43%	45%
Transfer funds	12	8	20	20%	20%
Others	10	15	25	17%	38%

Mostly the bank customers use the services of Deposits and Withdrawals. With today modern technology customer are using ATM, Tele-banking, etc. ATM users' rate is more in banks as per collected information. Trust receipt, Export Finance, transfer between accounts, any branch banking etc. is the least services that the customers are using.

Beside the various services provided by the banks, customers use the general services of the Bank. Average use of all the services is not found on this marketing research study.

Figure No : 5 Use of Bank Services

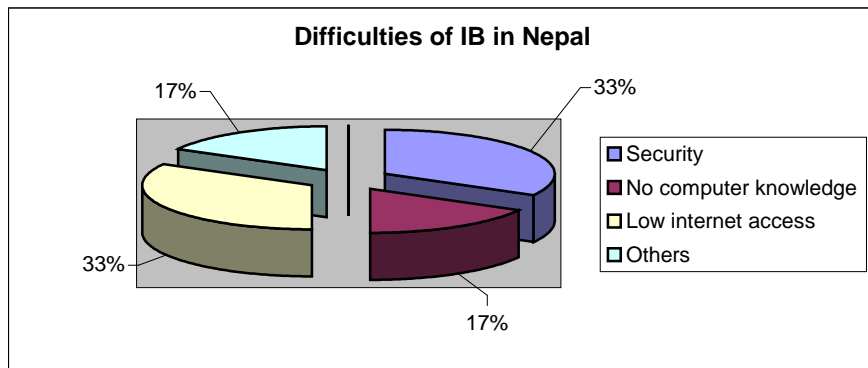


4.1.6. Feasibility and difficulties of Internet Banking

During the research activities, bankers and IB professionals of sample banks of the survey were asked to give their opinion about the feasibility of Internet banking in Nepal and its difficulties and their responses were found to be as following.

The users of Internet banking agreed unanimously that Internet banking is feasible in Nepal. They were further asked to give their opinion about the factor of feasibility for IB in Nepal. Time was the most important factor of feasibility for 50% of them and it was easy accessibility of banking services for others. According to their opinion fast and time saving banking and easily accessible Internet banking will make it feasible in Nepal. The research study tried to find out the difficulties of IB in Nepal from the Banker's point of view and they were asked that whether IB is working properly in Nepal. Then, 50% of the respondent said that it was working properly but other 50% didn't agree with it. When they were asked to point out the most important difficulties with the Internet banking in Nepal, the researcher found the responses as depicted in the following figure.

Figure No : 6 Difficulties of internet Banking in Nepal



As per the data above, security and low internet access were main difficulties of IB in Nepal. As data hacking, misuse and unauthorized access of information are some of important problems in online world it is obvious that security is one of the dominant problems in the IB of Nepal also.

4.1.7. Most demanded IB facilities/services in Nepal

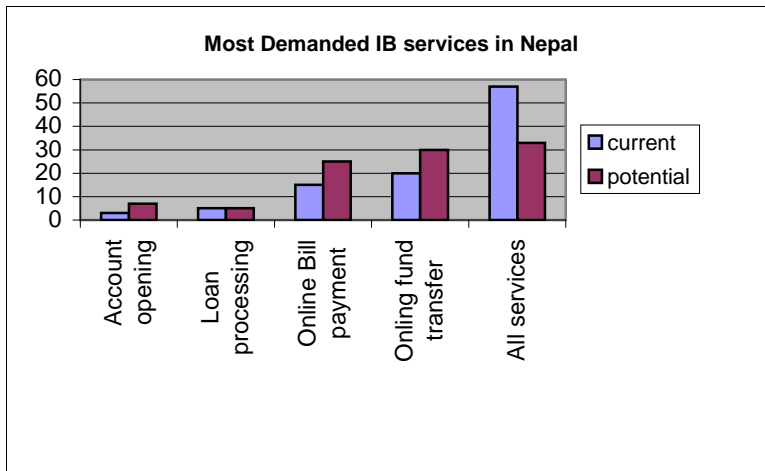
One of the objectives of this research study was to study the future prospective of IB in Nepal. Therefore, the study tried to find out most demanded IB services among consumers who were using IB and intended to use IB. They were asked to choose one or multiple options. Sample consumers in the survey selected different Internet banking services given in the questionnaire as options as per their preference.

Table No : 6

Most demanded IB services/facilities in Nepal			
Facilities	Current	Potential	Total
Account opening	3	7	10
Loan Processing	5	5	10
Online bill payment	15	25	40
Online fund transfer	20	30	50
All services	57	33	90

According to the Table above, it was found that most of the consumers surveyed want all IB services. From the above table we can see that 10%(3+7) of the customers use only account opening service, 10%(5+5) of the customers use Loan processing, 40%(15+25) of the customers use online bill payment, 50% of the customers use online fund transfer and among them 90% of the surveyed customers use all services of Internet Banking.

Figure No : 7 Most demanded IB services/facilities in Nepal



From the figure no 6 above, it is clear that consumers are demanding all kind of IB services as 3% consumers of the survey said that they want all types of IB services. Similarly, consumers who were already using IB were asked that which type of IB service they frequently use and around 85% of them said that they were using Bank statement inquiry service and some of them were found to have been using bill payment services as well.

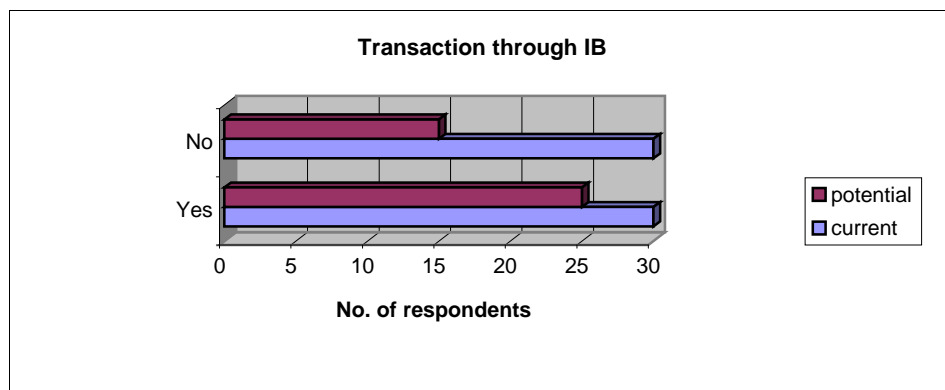
4.1.8. Transaction through Internet Banking

Table No : 7

Transaction through Internet Banking			
Online Banking Services	Yes	No	Total
Current	30	30	60
Potential	25	15	40

Internet banking services user are not satisfactory as per the information collected. Out of 100 respondents only 55 have used Internet banking services of the banks. This shows that Internet banking facility user rate is not very high. Banks providing the Internet Banking services are not been used completely by the customers.

Figure 8 Transaction through Internet Banking



Of the different Internet banking services offered by the Bank, statement download, Account details, standing order request, Fx-rate enquiry Cheque book replenishment request are the mostly online services used by the customers. Beside that the information collection like the Banks financial position, current period profit and loss, Loan interest information etc are collected online by the customers.

4.1.9. Satisfaction on Bank Services

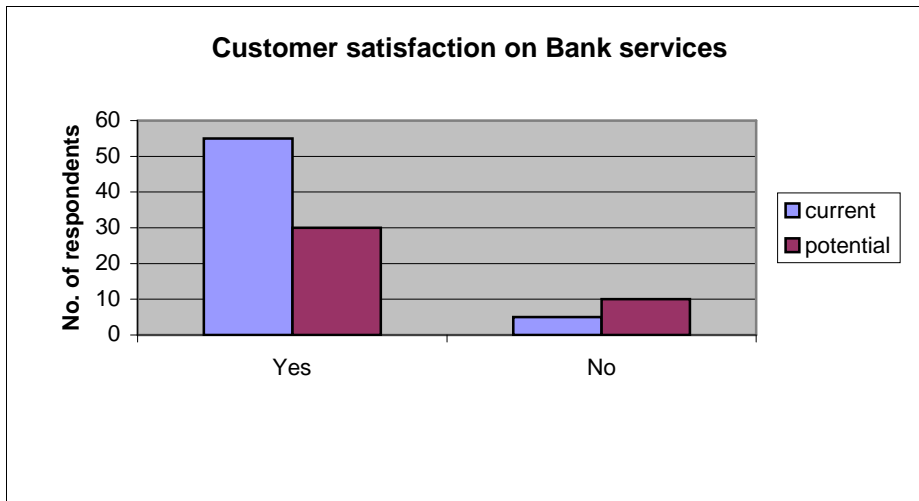
The current customers of the banks are satisfied with the services provided by the bank. It is found that 92% of the current customers are satisfied with the services provided by their respective banks and 75% of the potential customers are also satisfied with the

services provided by their current banks. Thus banks can further expand their services through various plans to make their customer satisfaction percentage high.

Table No : 8

Satisfaction on Bank Services				Percentage	
Customers	Yes	No	Total	Yes	No
Current	55	5	60	92%	8%
Potential	30	10	40	75%	25%

Figure No : 9 Satisfaction on Bank Services



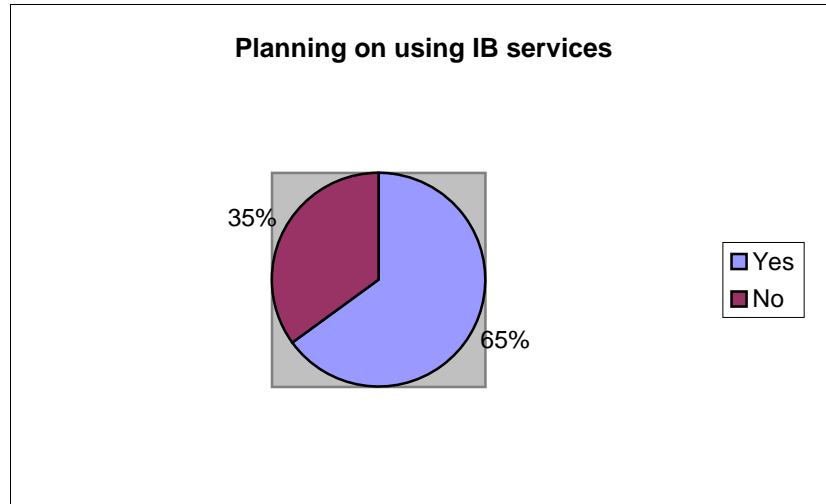
4.1.10. Planning on using Internet Banking Services

Table No : 9

Planning on using Internet Banking Services	
Online Banking Services	Frequency
Yes	65
No	35

Most of the customers are planning to use the Internet banking services due to the different services provided by the Bank through Internet banking services. With proper communication and infrastructure to the customers the banks can attract the pool of customers in using banking services of the banks. This shows the interest on using the Internet banking services is increasing in customers mind.

Figure No : 10 Planning on using Internet Banking Services



4.1.11.
on
banking

Table No

Grading on Internet banking services		
Grade	Current	Potential
Excellent	12	8
Good	22	10
Average	16	15
Below Average	10	7
Total	60	40

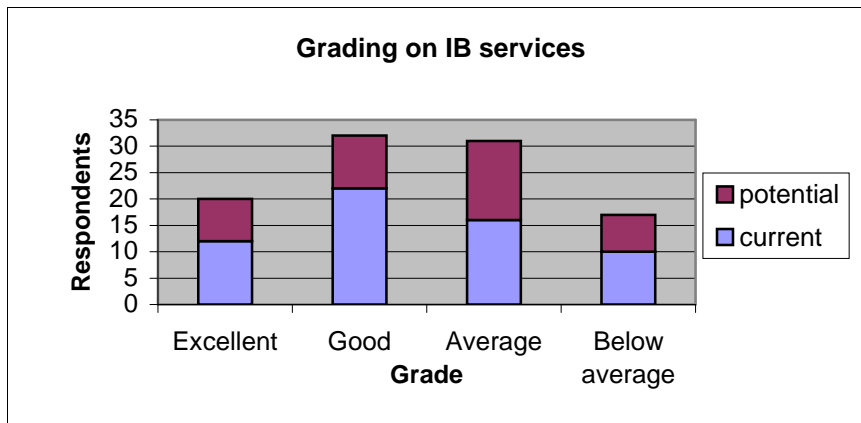
**Grading
Internet
services
: 10**

It is found that the Bank services are satisfactory to their respective customers. Few customers grade their banks services below average. And again we have tried to explore how the respondents grade the Internet banking services. And it is found that they are

quite happy with the online banking services. 32 of the total respondent have grade the online banking services as good and only 17 out of 100 respondents have grade the Internet banking services below average.

Thus it could be conclude that online banking services are one of the satisfied services to the customers that could be offered to the customers of the banks.

Figure No : 11 Grading on Internet banking services



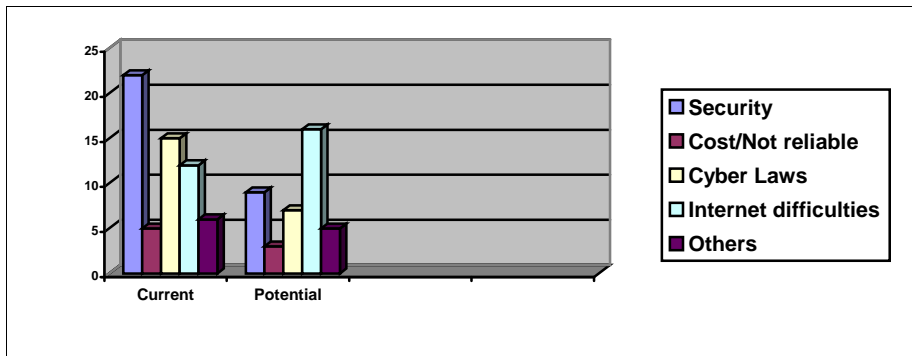
4.1.12. Problems on Internet Banking

Table No : 11

Problems on Internet Banking services		
Problems	Current	Potential
Security	22	9
Cost/Not reliable	5	3
Cyber Laws	15	7
Internet Difficulties	12	16
Others	6	5
Total	60	40

The mainly sited problems in the IB are listed in the table above. 22 and 9 of the current and potential customers sited the problem arising to the security while doing the transaction over the Internet. Beside that not aware of the cyber laws and not aware of the formulation of the cyber laws by the concerned authority also is one of the big problems in the Internet banking. Leas number of the respondents has given the problems of Internet Difficulties.

Figure No : 12 Problems on Internet Banking



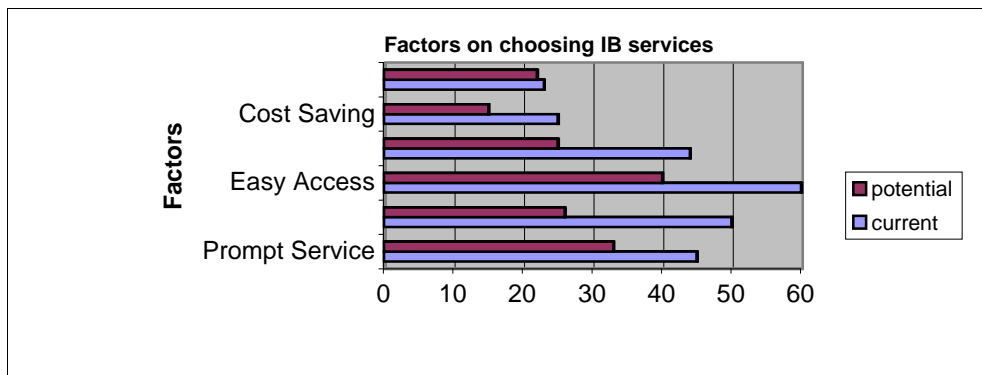
4.1.13. Factors on choosing Internet Banking Services

Table No : 12

Factors on Choosing Internet Banking			
Factors	Current	Potential	Total
Prompt Services	45	33	78
Time Saving	50	26	76
Easy Access	60	40	100
Convenient	44	25	69
Cost Saving	25	15	40
Secure Transaction	23	22	45

While finding out the factors behind using the Internet Banking services it is found that Prompt service, Easy access, Convenient and Time Saving are the mostly sited factors on behind using Internet Banking services.

Figure No : 13 Factors on choosing Internet Banking Services



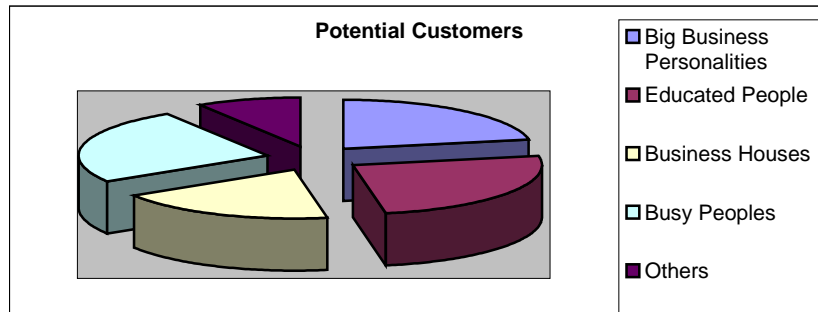
4.1.14. Potential Customers of Internet Banking Services

Table No : 13

Potential Customers of Internet Banking		
Types	Frequency	Percentage
Big Business Personalities	65	65%
Educated People	75	75%
Business Houses	56	56%
Busy Peoples	75	75%
Others	26	26%

While filling out the questionnaires by the respondent we found that the potential customers that the respondents sited are the educated people and busy people are the most sited customer. Due to not able to come to the bank premises for doing the banking transaction busy people are more likely to be the potential customers of the banks. Beside that big business personalities and business houses are also the mostly favorable customer in using Internet Banking services of the banks.

Figure No : 14 Potential Customers of Internet Banking Services



4.2 Findings:

Based on the analysis of the data and their interpretation, the study major findings in relation of the objectives set could be summarized the follows:

4.2.1 Findings from Interview:

1. Many banks are expanding their services through Internet banking in Nepal.

2. Among the customers, many of them are not aware of Internet Banking services provided by their respective banks.
3. Because of the customer using traditional banking services, the customers are unaware of the benefits provided by using Internet Bank Services.
4. The customers who are aware of the Internet Banking services are afraid of using those services because there are no prevalent affective cyber laws so the customer are exposed to the cyber crimes.
5. Lack of proper infrastructure of communication in the country also makes the bank not able to give the complete solution of internet banking services to the customers
6. Kumari bank has provided locked password encryption so that a part from the concerned no one else could enter into the account.
7. The major chunk of Internet Banking services users, are the big trading firms, business personalities and educated people.
8. Firms undertaking international business prefer to use Internet Banking services.
9. The most important difficulties of IB in Nepal according to the expert bankers and personals working in the Nepalese commercial bank are found to be security from hacking of vital banking information, lack of computer knowledge and very low internet access in Nepal.

4.2.2 Findings from Questionnaires:

4.2.2.1 Descriptive of the Sampling Plan:

A sample size of 100 consisted of 60 customers of Laxmi Bank and 40 Potential Customers (other than Laxmi Bank's customers) are described earlier. Most of the customers using Internet Banking services are big trading firms.

4.2.2.2 Identification of key attributes:

The key attributes that a customer looks for in the bank while utilizing IB services are derived from the exploratory research conducted before the questionnaire survey. The key attributes thus identified are as following:

➤ Benefits of the IB to Customers:

Benefits that the customers will get from the bank after using the IB services are:

-) Access to bank account (24 hours continuous services)
-) High interest and lower service charges

➤ Long-term (Future) business perspective of bank:

Making customer satisfaction is the major objective of the bank. With this objective of the bank, they can retain and attract more customers. Thus, for the long-term business perspective of bank, the following components of customer services are needed and required:

-) Reliability and safety of customer's assets
-) Timely transactions of the customers' receipts
-) Delivering on the promises made by the bank
-) Providing attractive and innovative services
-) Low charges in the bank transaction

Beside these above components of customer services of the banks, Advertisement and Promotion Activities of the bank have to be performed. The different components of business services are:

-) Customers related advertisements through Newspapers, FM, Television etc.
-) Making aware of the benefits and advantages of IB services
-) Customers related promotions through newsletters, meetings etc.

4.2.3 Security Problems on Internet Banking:

Security is always a concern by many consumers. Typical IB services available are protected with a PIN that members use to authenticate each banking transaction. Security measures also features 1024-bit master RSA key encryption for session key exchange and 128-bit triple DES encryption for data encryption.

Using 128-bit encryption means that it is virtually impossible for anyone using current technology to steal information. Simply put, it is like sending our mails inside a steel safe.

Probably the biggest single obstacle on Net-banking path to success is consumer skepticism about the security of the internet. Interestingly, the major risks in Internet Banking are probably not in the area which potential users focus on interception of financial data transmissions. Banks and other entities conducting business over the internet deal with the interception issue by encrypting sensitive information sent over the Net. Even versions of Netscape and Internet Explorer include encryption technology that makes it technically not feasible for a hacker to read the intercepted information.

A greater security threat is a hacker attack on the bank's main computer system through the point where the bank's computer is connected to the Internet. Lax security could permit a hacker to plant computer viruses, and corrupt or fraudulently create data on the bank's inter computer system.

Fortunately this risk is relatively simple to address by the aggressive use of "Firewalls" that only allow specified types of information to pass from the internet through to the bank's central computer and consistent security monitoring program.

As with ATM PIN protection, the best weapon is safeguarding Internet Banking access will be education customers. They need to be taught to avoid public access Internet terminals, select appropriate passwords, and stop transaction when presented with an unexpected internet screen or an unusual request for confidential information.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter deals with the conclusion and the recommendation derived from the study of Internet Banking services of Banks of Nepal. This chapter consists of three sections. First section provides the summary of the study, the second section draws the conclusion of the study and the final section recommendations to solve the problem observed during the study.

5.1. Summary:

In the map of the world, Nepal is popularly known as a country of Mt. Everest and small Himalayan kingdom. Nepal is also one of the richest countries in natural beauty and water resources. It is a south Asian country located between two giant countries of the world with very fast growing economy China and India. In the north China is getting the image as hardware and electronic goods pioneer and India as software pioneer in the IT world. Nepal, landlocked in between these countries, is still cursing fate for its geographical location. Now, world environment has changed with the development of Information technology and new innovations in the field like Internet and worldwide web and global information and communication connectivity. World is going to be changed into a small village and notion of time and disseminate information in the real timer from all round the world. With economic liberalization, globalization and equal access of information over the Internet now we no more need to feel landlocked an isolated from global access. We even don't need to worry for lack of natural resources like petrol and other mining as we can excel in the information world with our intellectual skills and knowledge based industry. Now, big size and huge population only doesn't count for success but winner is the one who is well informed and ready to exploit the information for better living. Thus, we can summarize that how important is this IT for us as a tool of development.

The urgency is similar to the banking sector of Nepal as well. Therefore, it is not the time to think whether we should go online or not, but to think how soon we are going to be connected to the online services. Nepal started modern and formal banking only since 1937 with the establishment of Nepal Bank Limited. Now, we have 31 commercial banks with as the NRB central bank to regulate our financial companies involving in financial activities. With increases in the number of banks and entry of joint venture banks in the

sector, competition in the banking sector has getting more tuff. This has lead to introduction of different kinds of banking services.

On the other hand, telecommunication technology first entered in Nepal in 1914/15 and sound development in the sector has made our country and society electronically connected more than ever before within the country and all over the world. Now millions of people are within its communication network and Nepal entered into the internet world with the Mercantile Communication since 1994. first entered in 1972, computer as good of durable nature has been such a popular engine of growth as PC that there are very few who haven't heard about it and there are thousands of computer all around the country from the premises of government offices to private firms and into the rooms of general public. Those computers are now slowly getting connected from local area network to worldwide network and cyber activities gradually growing even in the corners of the country.

Being aware with these economic and technological environment commercial banks in Nepal are already using IT for its internal activities and banking processing and even our public commercial banks like RBB and NBL also as been fully computerized during its restructuring process. Due to competition among commercial banks and with the objective finding new market segments, Nepalese commercial banks are also slowly recognizing the importance of electronic banking and trying to use it as new channel of banking. From some years now, ATM has become so popular that now there are more than 200 ATM in the major cities of the country. Banks are providing new more techno-savvy banking services like Debit and Credit card, ABBS, SMS banking and PC banking. Now, our commercial banks are offering new banking channel, very popular in west, Internet Banking.

Internet Banking also called virtual banking is a channel of online banking, which offers banking service through the worldwide web, and Internet. In this banking channel, consumers don't need to go to the bank after opening an active bank account for other financial transactions; consumer needs to apply for Internet banking services to his bank. After the approval of the application, he will get an Internet banking account ID,

username and password. Then he can get various kinds of banking services like bank statement inquiry, fund transfer, loan processing, bill payment, utility bill payment, cheque book order and payment stay order and perform financial transactions without visiting the bank just by logging in the secure official website of the bank. He can access the banking services from anywhere in the world at anytime where Internet, computer and the website of his bank is available.

The long run objective of the Bank is to retain the current customer and attract potential customers' base by providing the new improved banking services to its customers which can be achieved through new improved and innovative banking services. In Nepal the concept of Internet banking services is growing over the past few years and more and more customers are getting involved in using these services. But still the use of Internet banking is low and E-banking is in the developing state and it has a long way to go.

In order to summarize the whole study in a manner of the academic research, this study follows the conventions of the methodologies set by the University.

The first chapter of the study deals with background of the study basically the bank and its services in Nepal, focus of the study, statement of problem, objective of the study and limitation of the study. Next is the chapter of literature review where the history of banking and history of banking in Nepal is highlighted, the history on Internet banking is explored and environmental scanning of E-banking is done and the unpublished master degree thesis are explored.

Next the third chapter is about the research methodology in detail for the basic understanding of the various calculation and analytical methods applied in drawing the conclusion of the study.

The next chapter is the presentation and analysis of data which is the major part of the study. In this chapter, the analytical exploration and manipulation of data has been attempt within the frame of the methodology instead in the chapter of research methodology.

The final chapter is summary, conclusion and recommendations. In this chapter, the summary of the whole study, conclusions derived out of the study and the recommendations to solve the problem identified have been presented.

As per the objectives set earlier, the use of Internet Banking has been analyzed by the set questionnaires. It has been found that the traditional banking services has been utilizing the most by the bank customers in relation to the modern banking services like Internet Banking, Mobile Banking etc.

But the use of new technologies of banking services like ATM, Debit Card and Credit Card etc. had been increasing. For the study concerning the use of Internet Banking and its problems, primary data collected from the questionnaires were used, presented and analyzed.

5.2. Conclusions:

The major results of the study of Internet Banking services in Nepal are summarized as under:

1. The communication infrastructure of our country is unable to support the full-fledged implementation of Internet Banking Services.
2. The major obstruction for the implementation has been the absence of proper cyber laws and regulations.
3. Although Laxmi bank and other banks have been providing Internet Banking Services; but the banks customers are not very keen interested in the utilizing the Internet Banking Services.

4. The reason for customer not utilizing Internet Banking services are identified as follows:
 - a) Absence of cyber laws and regulations
 - b) Security/ Safety
 - c) Unaware/ Uneducated customers
 - d) Understanding of technologies associated with the services
 - e) Internet Difficulties
 - f) Satisfied with the traditional Banking services
5. Most of the customers using Internet Banking services are big trading firm, as most of the other customer having smaller accounts don't see the need for using those services.
6. Although the numbers of customers using Internet Banking services are very low, the number of new customer willing to using these services and increasing at a rapid rate.
7. IB has good scope in Nepal as many new firms are contributing to GDP by indulging in international business and thus requiring Internet Banking services to facilitate their various operations.
8. As we are in the era of globalization it is essential for most of the large trading firms and multinational enterprises to utilize Internet Banking services to become more competitive in the international market.

And the survey study has found that most of the commercial banks were found to be attracted towards IB by the motivational factors like fast banking processing, cost effectiveness, modern consumers' demand and easy accessibility to mass consumers through IB.

5.3. Recommendations:

A growing awareness of the commercial benefits of online banking has contributed to a sense of urgency among banks to deploy such systems. Electronic banking aims to

provide easy access to banking services for customers. Both banks and customers stand to benefit from the introduction of electronic banking schemes, since the bank can offer its services at much lower cost, while the customers can access the services from any location at any time. Indeed, these benefits can obviate the need for branches or teller's altogether, resulting in the emergence of so called virtual banks, which conduct business purely on an electronic basis.

Interest-based electronic banking schemes rely on the existence of an internet connection over which customers can access a bank's services. These are a number of models that can be adopted to implement such a system. Customer can use existing "Browser" software as Netscape's Navigator or Microsoft's Internet Explorer as the client interface to the banks system. In this model, the bank's server provided HTML forms-based interface through which customer can make request and conduct transactions.

Communications security is provided by the SSL protocol that is built into the browser. Or else customers can download Java applets from bank-server' website. The downloaded applet provides the interface through which customers transactions can take place. In this case, communication security is provided by the applet itself. Or customer can download executable file from the bank-server's website, which have been compiled for a number of common platforms. The funning executable provides the customers interface as well communications security.

Most Internet banking applications users based on an account/client number and a secret PIN. The account number is generally typed into a text field, while the "secret" PIN is entered via a GUI-keypad using the mouse. Account numbers are displayed in plain text, while an "*" is written to the screen as each keypad key is pressed. Once the user's information is complete, the application contacts the banks server and attempts to authenticate the user.

These systems all require privacy and integrity of transactions, and most importantly strong authentication. However, while these issues are usually well addressed by the communication protocols used in these systems, there are fundamental weaknesses in the

security of the platform on which these applications run. It is well known that many popular operations systems do not provide sufficient protection from the malicious programs such as viruses, which may be used to subvert authentication protocols by capturing authentication information such as PIN or passwords that are entered by users.

Network security is well known in the entire internet banking application, and is based on establishing a secure channel between the user's client application and the server running at the bank. The protocols used provide connection security that has three basic properties.

1. The transaction is private. Public key encryption is used after an initial handshake to negotiate a session key. Symmetric cryptography is then used for subsequent data encryption.
2. The peer's identity can be authenticated using public key cryptography.
3. Message transport includes message integrity check.

The finding of the study may provide important for those who are concerned directly or indirectly with the Internet Banking Services. Thus, the following recommendations can be outlined:

Possible Solutions against security:

The potential value to an attacker of hacking internet banking application means that they may go to extraordinary lengths in order to do so. Most of the banking applications are using simple passwords as primary form of authentication. The followings are possible solution:

1. **One time Passwords:** In one time passwords systems, the password entered is only valid for a single login, and the changes is a secure way. The benefit of such system is that monitoring by an attacker is useless, as the information cannot be reused. However the disadvantages of this scheme are that administration is complex, and the user has to store a list of keys on a sheet of paper, creating the potential for theft and misuse. For these reasons, it is unlikely that a bank would adopt such a scheme. Or that the public would accept it, even if it were implemented.

2. Token Based Authentication: Token-based systems provide authentication of a user by requiring them to demonstrate the possession of physical object or token which is unique to that user. There are basically three types of tokens:

-) **Memory tokens:** These tokens do not contain any processing capacity, but contain authentication data stored in magnetic, electronic or optical form.
-) **Microprocessors tokens:** These tokens contain a microprocessor in addition to memory. Such token may implement cryptographic algorithms for encryption on the card. Microprocessor token are commonly referred to as smart cards. Many smart cards have properties that make them resistant to tampering.
-) **Handheld password generators:** This class of items includes both hardware calculators for the one-time password mechanism as described above, and challenge-response calculators that allow a user to enter a challenge from the server and calculate the appropriate response. Unfortunately, all these schemes require the purchase of extra hardware.

Further banks can take the following steps for improving the services of Internet-banking.

1. Different Banks have to take initiative in formulation of strong cyber laws with Central Bank and concerned Authority.
2. Proper communication of the benefits of the E-banking has to be made with current and potential customers so as to increase the use of Internet Banking among the customers.
3. Customers need to be taught to avoid public-access Internet terminals, select appropriate passwords, and stop transaction when presented with an unexpected internet screen of an unusual request for confidential information.
4. Establishing one Central Vigilance Commission (CVC) and direct all banks to compulsorily offer ABBA to their customers.
5. Effective and Efficient Security systems have to be installed to make the transaction more secured.

6. Advertising has to be done through Newspaper, Televisions, and Radios etc to make aware to the public for using the Internet Banking services of the bank.
7. Appropriate Software has to be developed and used in the banks server application to ensure that there will be no security problems in using the Internet Banking Services.
8. Back up of the information has to be done in case of any damages by any cause.
9. Proper training to the staffs has to be done in order to add value to the customers' satisfaction.
10. Updating with the technologies has to be done to keep the pace with changing environment.
11. Disaster Recovery Plan had to be made so as to be secure of any harm happening to the assets of the bank.
12. Bank has to open their branch in the industrial and other areas of Nepal to provide the services of Internet Banking to the customer and making aware of IB services provided by their banks.

Internet banking has the potential to provide a useful service to customers and banks alike. However, unless more consideration is given to the design of secure applications that can operate within an un-trusted environment, internet banking will remain an activity that is associated with a significant level of risk.

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3. Do you think Internet Banking is feasible in Nepal?

Yes () No ()

a) Which is the most important factors of feasibility for Internet Banking?

Time ()

Cost ()

Feasibility ()

Easy accessibility ()

4. Services that you use most in the banks:

Deposits/withdrawals ()

Transfer fund ()

Foreign currency exchange ()

Letter of Credit ()

Trust receipt ()

Remittance ()

Bank guarantee ()

Loan request ()

Export finance ()

Any branch banking ()

Telex/Wire transfer ()

Tele banking ()

ATM ()

Others ()

5. Are you satisfied with Internet Banking services of Nepal?

Yes ()

No ()

6. What are the factors on choosing Internet Banking services?

Prompt Services ()

Time saving ()

Easy Access ()

Convenient ()

Cost saving ()

Secure Transaction ()

7. Who do you think the potential Customers of Internet Banking services?

Big business Personalities ()

Educated People ()

Business Houses ()

Busy People ()

Others ()

8. What are the most demanded Internet Banking services/facilities in Nepal?

Account opening ()

Loan Processing ()

Online Bill Payment () Online fund transfer () All Services ()

9. Do you think Internet Banking transaction is secure?

Yes () No ()

10. What are the problems with Internet Banking services?

Security () Cost/Not reliable () Cyber Laws ()
Internet Difficulties () Others ()

11. What are your suggestions for making Internet Banking a modern way of Banking?

Strongly secure transaction ()
Educate about Internet Banking ()
My own suggestions (.....)

“Thank you very much for your time and cooperation.”