

# CHAPTER I

## INTRODUCTION

### 1.1 History of Internet Banking in Nepal

Across the globe, but specifically in Nepal, current trend in private banking has been the consumer movement from traditional branch banking to more stand-alone banking. In other words, a move towards using e-delivery channels such as the Internet, telephone and mobile phones. Many banks are beginning to deliver credit and deposit products electronically. Nepal's journey into the world of information technology began some three decades back with the use of IBM 1401 for the population census, 1971. Royal Nepal Academy for Science and Technology (RONAST), currently known as NAST for the first time, used the internet. Mercantile Private Limited started email services for commercial purposes in June 1994. (Yadav, 2004, p:27)

#### History of Electronic Banking Aspect

After the establishment of 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 then, Nepal Arab Bank Limited (NABIL) was established in 1984 A.D. as a joint venture bank (Joshi, 2000, p: 217-18) which had introduced credit card in Nepal for the first time in 1990. The e-mail services provided by Royal Nepal Academy for Science and Technology (RONAST) currently known as NAST can be regarded as the first use of Internet technology in Nepal. But, the credit of introducing Internet amongst Nepalese people goes to the private sector. It was with the initiative of Mercantile Office Systems that commercial e-mail service was first provided in June 1994.

A year later, Mercantile Communications, a branch of Mercantile Office Systems started Internet Services. Mercantile had, at that time, established connection to Singapore Telecom, Singapore via a 64 kbps leased line through Nepal Telecommunications Corporation (NTC), the only basic telecom service operator. Therefore, Mercantile Communications can be regarded as the first ISP of Nepal.

(<http://www.tc.apii.net/~nepal/country%20report%20Nepal.HTML>)

After the initiation of democracy in 1990 A.D., NRB adopted a more liberal policy in establishing the commercial banks. As a result, Himalayan Bank was established in 1993 in joint venture with Habib Bank Limited of Pakistan which had launched first ATM in 1995 and thereafter Tele-banking facility was introduced in 1997. ([www.himalayanbank.com](http://www.himalayanbank.com)) With the vision of placing Nepal on the Global Map of Information Technology within the next five years, government has formulated IT Policy 2000. The IT Policy, 2000 is the most visible and commendable attempt made by the government to promote the Internet and Information Technology. In the working plan, it is stated “An Internet node shall be established in all development regions by fiscal year 2058/059 B.S (2001/2002 A.D) and in district headquarters by fiscal year 2060/61B.S (2003/2004 A.D) with participation of the private sector in order to make Internet available throughout the country. The IT Policy, if implemented timely, certainly gives a good reason to be hopeful about the future of Internet in Nepal.

(<http://www.tc.apii.net/~nepal/country%20report%20Nepal.HTML>)

Kumari Bank Ltd. was established in 2001 as the private sector bank which had first introduced Internet banking in 2002 and after then SMS banking (Mobile banking) was also launched by the bank in 2004. ([www.kumaribank.com](http://www.kumaribank.com)) The banking industry of Nepal which is booming every year, is looking forward to implementing internet banking services. The biggest constraint for a full fledged e-banking operation is lack of cyber-law. So, the government decided to introduce Electronic Transaction and Digital Signature Act 2057 revised in 2005, yet to be brought in practice also known as Cyber law, through an ordinance.

Banking industry of Nepal has been taking rapid strides 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 computer industry to continuously keep pace and innovate products to suit its needs. (Mahat, 2004)

## **1.2 Background of the study**

“The advent of the internet and the popularity of personal computers presented both an opportunity and a challenge for the banking industry. For years, financial institutions have used powerful computer networks to automate millions of daily transactions; today, often the only paper record is the customer’s receipt at the point of sale. Now that its customers are connected to the internet via personal computers, banks envision similar economic advantages by adapting those same internal electronic processes to home use.” (<http://www.management-hub.com/cm-online-banking.html>)

“Online banking was first offered in 1995, when 16 of the largest banks including Compass Bank, Chase and Nations Bank, began the service through Intuit Inc.’s Quicken financial software. Prior to 1998, there had been concern over the slow rate at which consumers were adopting internet 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 “*Build it and they will come*” approach taken by financial institutions.” (<http://www.bankrate.com/brm/news/bank/19990302.asp>)

Internet banking generally means that a home user direct-dials the bank via a modem or network card logging on to the internet via an internet service provider and then going to the bank’s website before accessing the secure site via a password. 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 economies. This has resulted in faster funds movement across nations and borders.

Globalization of economies and financial liberalization within the economies has opened new opportunities of growth for technology based 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.

“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. The large functional and geographical spread of banks has led to a sharp growth in the number of accounts and in the areas of operation of banks. This has necessitated switchover from hard cash to paper based instruments. Computerization of service branch operations, serves as a vital fulcrum point for all clearing operations. All paper based payment instruments whether presented by the bank in clearing or drawn on it, are routed through the Service branch, where the relevant accounting entries are passed for inter-branch reconciliation. The average daily volume of cheques processed in clearing operations has been surprisingly high. Banks have had to therefore computerize the operations of service branches. Use of this technology will contribute to the reduction in the reconciliation problems in the clearing operations.” (Thapa, 2004, p:13)

“The development and use of communication networks has also helped the banking industry to gain in terms of improved bank services. We can see the effect of computerized banking in our neighbour country when they first started with BANKNET network, a leased line terrestrial network connecting seven major cities in the country viz., Mumbai, Delhi, Kolkata, Chennai, Hyderabad, Bangalore and Nagpur. RBI Net communication software, uses the BANKNET infrastructure for providing the facility of message and file transfer between branches of banks and across banks. Another significant milestone in this area is the operationalisation of the Shared Payment Network System (SPNS) of ATMs of the Indian Banks Association in Mumbai. The Network, operational since February 1997, provides round the year electronic banking services to the customers of twenty-eight member banks. As on June 30, 1999 the network in

Mumbai is operational with 101 ATMs of 28 member banks with a card base of 90,000 customers. This exponential growth can also affect the Nepalese financial sector. It is expected that as volumes increase, the number of ATMs will increase and will spread to other commercially important centers.

Around seven banks are already using the VSAT networks of third party service providers for various applications such as cheque collection advices, e-mail and some MIS related applications. Banks in Nepal are members of SWIFT- Society for Worldwide Inter-bank Financial Telecommunication Network. SWIFT is used for the transmission and receipt of all international financial messages by the member banks and financial institutions in the country.

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. The scope for widening its coverage further seems to be very substantial.” (Thapa, 2004, p:3-4)

Only few people of Nepal have heard a little about internet banking but probably haven't tried it. They still pay their bills by cash and deposit checks at their bank branch. But this online banking might change the shopping scenario. We might shop online for a loan, life insurance or a home mortgage. Internet banking isn't out to change money habits. Instead, it uses today's computer technology to give the option of bypassing the time-consuming, paper-based aspects of traditional banking in order to manage finances more quickly and efficiently.

“Banks view online banking as a powerful “Value added” tool to attract and retain new customers while helping to eliminate costly paper handling and teller interactions in an increasingly competitive banking environment. Today, almost commercial banks are offering different kinds of internet banking, variously known as PC banking, home banking, e-banking, mobile banking, SMS banking or online banking.

Those that do are sometimes referred to as “brick-to-click” banks, both to distinguish them from brick-and-mortar banks that have yet to offer internet banking, as well as from online or “virtual” banks that have no physical branches or tellers whatsoever.” (<http://www.management-hub.com/cm-online-banking.html>)

It's easy to do internet banking, sit down, start computer and dial in to banking center. We can check our balance, print statement, fund transfer, pay bills and more, all from home/office. We can even pay from our credit cards right online. No need to jump in the car and fight traffic to get to the bank before it closes. Plus, we can do our banking whenever we want. We are not limited to lobby hours.

### **1.3 Focus of the study**

Because of the infrastructure and level of computerization in the industry, it is clear that banks in future are going to be modern with inter-connectivities facilitated by emerging technologies. In such a context, there is no other option left for Nepalese banks than to evolve a strategic vision that builds over the present technology base. Besides, the Central banks should promulgate a new law, which will drive banks to computerize total banking business in the country. There should be Central Vigilance Commissioner's Notification on the subject, which will help banks to improve their internal vigilance administration.

Banks in future cannot survive without the support of Information Technology. Therefore, banks are to be prepared to exploit the opportunities that globalization and financial liberalization provides. In this context, computerization of banks should be an imperative task to support the environment in which banks are operating in Nepal. Computerization of branch operations, controlling offices and the head offices has been going apace particularly sharply in recent times since that is the only by which senior management's in banks can gain information on the size of operations on a daily basis.

The banking industry is clearly being aware on the imperatives of financial liberalization and has therefore attempted to computerize branches that are located in commercially important centers across the country.

In the western countries and some of the largest financial institutions of India offer fully secure functional online banking for free or for a small fee. Some joint venture banks like Standard Chartered Bank, NABIL Bank, Himalayan Bank, Kumari Bank and Machchapuchare Bank offer limited access or functionality, for instance, we may be able to view our account balance, statement printing, etc. As more banks succeed online and more customers use their sites, fully functional online banking likely will become as commonplace as automated teller machines.

Some of the advantages of internet banking are convenience, transaction speed, efficiency, effectiveness etc. This system has some loopholes also like, start-up may take time, learning curve, bank site changes and the trust thing. For many people, the biggest hurdle to online banking is learning to trust it.

#### **1.4 Statement of the Problem**

This study is conducted to find out the answers of the following questions that are as follows:

1. What are the opportunities provided by the internet banking in the context of Nepalese commercial bank?
2. What are the threats faced in internet banking regarding security aspect?
3. What are the advantages of internet banking to the Nepalese customers?

## **1.5 Objectives of the study**

The main objective of the study is to find out the feasibility of internet banking in Nepal and suggest the ways of implementing the same. The major objectives of the study are given below:

1. To find out opportunities of the internet banking in the context of Nepalese commercial bank.
2. To find out the security threats on internet banking system.
3. To find out the advantages of internet banking to the Nepalese people.
4. To suggest measures to improve the IT policy regarding internet banking.

## **1.6 Significance of the study**

It is obvious that Nepalese banks in future cannot survive without the support of Information Technology. This is the right time to consider over the challenges that arise as a result. From all indications, banks seem to be prepared to exploit the opportunities that globalization and financial liberalization provides. This study mainly helps the commercial banks to get an idea about the prospective of internet banking.

Due to the information technology (IT) revolution in the globe, Nepal is also witnessing a large number of cyber activities both at private and government levels. Nepal entered the cyber world in the late 70s. Private sector and joint ventures take a lead role to the development of IT. The government formulated IT policy in 2000, putting forth its various agenda to develop IT and manipulate the latest IT discoveries for the overall development endeavors. However, the government has not yet introduced the supporting act regulations essential to boost e-commerce and e-governance.

This study will provide a useful feedback to the IT policy makers of the bank and also becomes a useful reference for other commercial banks of Nepal and Central bank (NRB) for the formulation of appropriate strategies. Nepalese people are still not aware about the online transactions. This thesis will help them to get the concept of online services available to them. This thesis has not been written previously, it was quite a difficult job to complete this thesis in time. This study will be also helpful to the MIS students who wanted to do a further intensive study about the online banking.

### **1.7 Limitations of study**

The study has following limitations.

1. This study is only for partial fulfillment of MBS degree and prepared within time constraint which weakened adequacy of the study.
2. This is a descriptive study only on future prospective of internet banking in Nepal.
3. The whole study is based the opinion survey of different professionals which may not be free from limitation due to individual response.
4. Among many factors affecting internet banking, only future prospective will be studied.

### **1.8 Structure of the study**

This study has been structured into five chapters. The first chapter presents the introduction of the whole study. The second one includes the reviews of relevant theories. Research works and reports. The third one deals with methodologies followed in this study. The fourth chapter presents the analysis and presentation of data and major findings. Finally, the fifth chapter summarizes the study and presents the conclusions and recommendations.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

#### **2.1 Introduction**

This chapter covers the review of literature, which is related to review various literatures concerned with the study. It is separated into two parts - theoretical framework/review of related study. The first section presents the theoretical concept on internet banking. The second one reviews the relevant thesis and concerned reports.

#### **2.2 Theoretical Review**

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

##### **2.2.1 Historical Background of Banking Service in Nepal**

In Nepal, financial system is still in evolutionary phase. The existence of unorganized money market consisting of Land-lords, Shahukars (Rich Merchants), Shopkeepers and other indigenous individual money lenders has acted as barriers to institutionalized credit.

During the Prime Ministership of Ranoddip Singh around 1877 A.D., a number of economic and financial reforms were introduced. The establishment of the “Tejarath Adda” fully subscribed by the government in the Kathmandu valley was one of them. The “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 was the establishment of Nepal Bank Limited on November 1937. It laid the 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. It has authorized capital of Rs. 10 million fully subscribed by the government. It was empowered by act to have direct control over financial institutions within the country. It started issuing currency in 1959 A.D. The second commercial bank Rastriya Banijya Bank was established in 1966 A.D. (40 Years of Nepal Rastra Bank, 1996, p: 27-40).

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 then, Nepal Arab Bank Limited (NABIL) was established in 1984 A.D. as a joint venture bank. (Joshi, 2000, p: 217-18). Likewise then, Nepal Indo-Suez Bank Ltd. (Renamed as Nepal Investment Bank Ltd.) and then Nepal Grindlays Bank Ltd. (Renamed as Standard Chartered Bank Nepal Ltd.) were established under joint venture in 1986 and 1987 A.D. respectively.

After the initiation of democracy in 1990 A.D., NRB adopted a more liberal policy in establishing the commercial banks. Now the number reached 26, more than three folds.

### **2.2.2 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 economies. This has resulted in faster funds movement across nations and borders.

Globalization of economies and financial liberalization within the economies has opened new opportunities of growth for technology based 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.

Nepal has 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. Globalization has 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.

### **2.2.3 Computerization in Banks**

Banks in future cannot survive without the support of Information Technology. Therefore, banks are to be prepared to exploit the opportunities that globalization and financial liberalization provides. In this context, computerization of banks should be an imperative task to support the environment in which banks are operating in Nepal. Computerization of branch operations, controlling offices and the head offices has been going apace particularly sharply in recent times since that is the only by which senior management's in banks can gain information on the size of operations on a daily basis. The banking industry is clearly being aware on the imperatives of financial liberalization and has therefore attempted to computerize branches that are located in commercially important centers across the country.

“The large functional and geographical spread of banks has led to a sharp growth in the number of accounts and in the areas of operation of banks. This has necessitated switchover from hard cash to paper based instruments. Computerization of service branch operations, serves as a vital fulcrum point for all clearing operations.

All paper based payment instruments whether presented by the bank in clearing or drawn on it, are routed through the Service branch, where the relevant accounting entries are passed for inter-branch reconciliation. Banks have had therefore computerize the operations of nearly 90% of the service branches.”(Thapa, 2004, p:13)

The development and use of communication networks has also helped the banking industry to gain in terms of improved bank services. Electronic payment products such as Electronic Clearing Service (Credit and Debit) are becoming increasingly popular with corporate businesses. The Nepal Rastra Bank responding to the needs of business entities has been offering different computerized products. The number of corporate institutions availing the ABBS service has been increased. The scope for widening its coverage further seems to be very substantial.

#### **2.2.4 Evolution of Internet Banking**

##### **(a) Internet**

Before the evolution of internet, the computer was used for some type of internal jobs only. But as soon as the whim of internet enters in the commercial sector the mode of business has been converted from hard cash to digital cash. Marketing has been started on the cyber and all the payments started to channel through the electronics media.

“The advent of the internet and the popularity of personal computers presented both an opportunity and a challenge for the banking industry. For years, financial institutions have used powerful computer networks to automate millions of daily transactions; today, often the only paper record is the customer’s receipt at the point of sale. Now that its customers are connected to the internet via personal computers, banks envision similar economic advantages by adapting those same internal electronic processes to home use.”

(<http://www.management-hub.com/cm-online-banking.html>)

Today, information on anything is just a click away. The challenge hence is not simply to use and spread information but to create new business. Thus, innovation evolves from the minds and imagination of people when they are inspired to create value through their products and services. Now a customer can check his account details, transfer his money, and pay their bills through the internet within a small span of time. Even if the branch is closed, account information is in real time.

### **(b) E-commerce**

Electronic commerce, commonly known as electronic marketing or e-commerce, consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks. The amount of trade conducted electronically has grown extraordinarily with widespread Internet usage. The use of commerce is conducted in this way, drawing on innovations in electronic funds transfer, Internet marketing, online transaction processing, inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web although it can include a wider range of technologies such as e-mail as well.

Electronic commerce that is conducted between businesses is referred to as business-to-business or B2B. B2B can be open to all interested parties (e.g. commodity exchange) or limited to specific, pre-qualified participants (private electronic market). Electronic commerce that is conducted between businesses and consumers, on the other hand, is referred to as business-to-consumer or B2C. This is the type of electronic commerce conducted by companies such as Amazon.com.

Electronic commerce is generally considered to be the sales aspect of e-business. It also consists of the exchange of data to facilitate the financing and payment aspects of the business transactions. ([http://en.wikipedia.org/wiki/Electronic\\_commerce](http://en.wikipedia.org/wiki/Electronic_commerce))

### **(c) Internet Banking**

Internet banking refers to systems that enable bank customers to access accounts and general information on bank products and services through a personal computer (PC) or other intelligent device.

“According to Michael Karlin, the President and Chief Operation Officer of the world's first virtual bank, Security First Network Bank, the idea of Internet Banking is as follows:

1. You do not have to purchase any software, store any data on your computer, backup any information, since all transactions occur on the bank server over the infrastructure of the Internet.
2. You will be able to conduct your banking services anywhere you like but you need to have a computer and a modem, no matter where you are (e.g. at home, at office, or in a place outside the country).
3. You can use the banking services 24 hours a day, 7 days a week, and 365 days a year. You no longer have to reconcile a bank statement or manually track your ATM and paper checks.” (Maharjan, 2009, p:10)

“Internet banking products and services can include wholesale products for corporate customers as well as retail and fiduciary products for consumers. Ultimately, the products and services obtained through Internet banking may mirror products and services offered through other bank delivery channels.

Some examples of wholesale products and services include:

- Cash management.
- Wire transfer.
- Automated clearinghouse (ACH) transactions.
- Bill presentment and payment.

Examples of retail and fiduciary products and services include:

- Balance inquiry.
- Funds transfer.
- Downloading transaction information.
- Bill presentment and payment.
- Loan applications.
- Investment activity.
- Other value-added services.

Other Internet banking services may include providing Internet access as an Internet Service Provider (ISP). Historically, banks have used information systems technology to process checks (item processing), drive ATM machines (transaction processing), and produce reports (management information systems). In the past, the computer systems that made the information systems operate were rarely noticed by customers. Today, Web sites, electronic mail, and electronic bill presentment and payment systems are an important way for banks to reach their customers.”(Comptroller’s Handbook, 1999, p:1-2)

#### **(i) Paying Bills Online with Internet Banking Service**

For some computer users, paying bills online is as natural as using e-mail instead of writing a letter: it’s quicker and easier. Today, more and more brick-to-click and virtual banks are offering it free as an online service: others require a certain account minimum or charge a nominal fee, in part to defray the cost of a third-party e-payment provider.

#### **(ii) Getting Started the Internet Banking Service**

To go online, customers first must have a checking account and a computer with a modem, plus web browsing software such as Microsoft’s Internet Explorer or Netscape’s

Navigator. Next, customers need to either pick up a one page application (usually available online) from the bank or have it mailed. The application tells the bank who can access the account and which accounts are involved. Four to five days later, the customer will receive online software (if the bank doesn't offer web based service) in the mail, a personal identification number (PIN) and a password. Now customers can do their banking right from their home with the help of their PC.

If the bank offers web based service, customer should do the following steps after receiving personal identification number (PIN) and password.

**Step 1 :** Go to official website of bank. For example, go to [www.bok.com.np](http://www.bok.com.np)

**Step 2 :** Click on Internet Banking logo of the bank.

**Step 3 :** Type PIN and password and click on login button. Then it displays the terms and conditions.

**Step 4 :** Go through entire terms and conditions and click on Accept button if you agree to the same.

**Step 5 :** The password provided to customer in Pin Mailer is Old Password and same is Old Authorization Password. Type the Pin Mailer Password in Old Login Password and Desired Password in New Login Password and confirm the New Login Password.

Similarly, type the Pin Mailer Password in Old Authorization Password and Desired Password in New Authorization Password and confirm the New Authorization Password.

**Step 6 :** Click on Change button.

**Step 7 :** Now customer may enjoy benefits of Internet Banking.

(Bank of Kathmandu's Internet Banking "BOK Click" Brochure)

## Flow Chart and Data Flow Diagram of Internet Banking Process

NO

YES

YES

NO

YES

YES

(Thapa, 2004, p:25)

Apply for Loan

Bad

(Thapa, 2004, p:26)

(Thapa, 2004, p:27)

(Thapa, 2004, p:28)

### **(iii) Scheduling Payments through Internet Banking**

Once customer has registered the accounts they wish to pay online, the next step is to schedule payment. They simply select the account they wish to pay from, the payee account they wish to pay to, the amount they wish to pay and the date they want the payee to receive the payment.

Creditors receive online payment in one of two ways: electronic payment or check. If the payee is set up to accept electronic payments, the payment is automatically debited from the account and deposited electronically into their account, just as if written a check. If the payee cannot accept electronic payments, and most businesses cannot, they will be issued a check based on online payment instructions, hence our bank's 4-5 day grace period. (<http://www.ameinfo.com/55110.html>)

Bank may set a minimum number of days, often four or five, as the earliest available payment date. They may also have the option to schedule recurring payments, make multiple payments at once, and automatically pay e-bills.

Banks often contract with third party providers to fulfill this online payment function. These same service providers often work with the payees as well, particularly large corporations, municipalities and utilities, to provide e-billing and other cost-saving online features.

### **(iv) Tracking Payments in Internet Banking Service**

Naturally, we want to make sure our online bill payments get processed correctly and on time. We should always check our accounts 1-2 days after our request date to verify that our bill payment request has been executed. We should also remember that it could take several days for our creditor to apply the payment to our account.

For peace of mind, we may want to request that our bank send an alert to our e-mail, wireless device or online banking website when a payment clears.

As with account transfers, we may want to print the transaction-completed or receipt page when we pay our bills online as a reminder to make sure they post on our e-banking site or in our next statement. (<http://www.ameinfo.com/55110.html>)

#### **(v) Instruments used in Online Banking**

##### **Credit Card :**

No credit checks and no bank account required. Receive new credit card just few days, and have the freedom to rent cars, reserve hotels, book vacations, pay bills, and shop everywhere that is accepted. This facility is provided by some of the banks like Standard Chartered Bank, NABIL Bank, Nepal Investment Bank, Laxmi Bank, Bank of Asia Nepal. Recently, Bank of Kathmandu has started credit card facility to its customers.

##### **Wired Plastic Card**

Lets set own limits by pre-funding the amount which need to spend, unlike other cards there are no annual fees, no transaction fees, no interest charges or debt to repay, no reload fees. The prestige and purchasing power of this type of card is called Wired Plastic Master Card. (<http://www.anycredithistory.com/credit-services.htm>)

This card is not available in Nepal.

##### **Advanta Computer Card**

Businesses can apply for the Advanta Platinum Business Master Card and earn rebates on computers equipment and other electronics products.

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**

“Visa Electron is a debit or credit card available across most of the world, with the exception of Canada, Australia, Ireland and the United States. The card was introduced by VISA in the 1980s and is a sister card to the Visa Debit card. The difference between Visa Electron and Visa Debit is that payments with Visa Electron require that all the funds be available at the time of transfer, i.e., Visa Electron card accounts may not be overdrawn. Visa Debit cards, on the other hand, allow transfers exceeding available funds up to a certain limit. Some online stores and all offline terminals (e.g., on trains and aircraft) do not support Visa Electron because their systems cannot check for the availability of funds.” ([http://en.wikipedia.org/wiki/Visa\\_Electron](http://en.wikipedia.org/wiki/Visa_Electron))

Nepal Investment Bank Ltd., in Nepal introduces this card. It is different from Credit Card, to use this card we have to open an account with the bank and can use this debit card upto our minimum balance imposed by the bank. Now, Nepal's second commercial bank Rastriya Banijya Bank also providing Visa Electron Debit Card facility to its customers.

### **ATM Card**

“An automated teller machine (ATM) is a computerized telecommunications device that provides the clients of a financial institution with access to financial transactions in a public space without the need for a cashier, human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip, that contains a unique card number and some security information, such as an expiration date or Card Verification Value Code (CVVC), Card

Verification Code (CVC). Authentication is provided by the customer entering a personal identification number (PIN).” ([http://en.wikipedia.org/wiki/Automated\\_teller\\_machine](http://en.wikipedia.org/wiki/Automated_teller_machine))

This card is used to withdraw your money any time, if you have a balance in your account. This type of card can be used in the ATM machine only. First ATM service in Nepal was provided by Himalayan Bank Limited in 1995. After then, Standard Chartered Bank Nepal Ltd., Nepal Bangladesh Bank Ltd., Nepal Investment Bank Ltd. has provided this service. This service is catching up very fast with the customers. Now, all the private commercial banks have been providing this service.

### **2.2.5 Security Problem in Internet Banking**

“Security is always a concern by many consumers. Typical internet banking services available are protected with a PIN that members use to authenticate each banking transaction. Security measures also feature 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 out mail inside a steel safe. The 128-bit encryption is only available to members in the United States and Canada and federal regulations only allow U. S. and Canadian customers to download the 128-bit encrypted software.

Probably the biggest single obstacle on Net banking’s 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 transmission. Banks and other entities conducting business over the internet deal with the interception issue by encrypting sensitive information sent over the Net. Even current versions of Netscape and Internet Explorer include encryption technology that makes it technically not feasible for a hacker to read the intercepted information.” (Thapa, 2004, p:33)

“As the Federal Deposit Insurance Corporation (FDIC) pointed out in its December 1997 “Issues Paper” on internet security, encryption alone is not a complete solution. Anyone who improperly obtains a customer’s log-on identification and password will be able to fool a bank’s internet security software and internal safeguards into believing that the customer is legitimately conducting a transaction.

A greater security threat suggested by the FDIC 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 internal 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 a consistent security monitoring program.

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

([http://www.ecomputerlaw.com/articles/show\\_article.php?article=2006\\_online\\_banking;\\_it%60s\\_your\\_bank%60s\\_future](http://www.ecomputerlaw.com/articles/show_article.php?article=2006_online_banking;_it%60s_your_bank%60s_future))

It is interesting as well as important to note that in order to minimize frauds, there should be one Central Vigilance Commission (CVC) and they should direct all banks to compulsorily offer Anywhere Branch Banking System (ABBS) to their customers. In India the INFINET (Central Vigilance Commission) network provide the communication backbone for the ECS service (Electronic Clearing System). ECS services will ensure that customers get the credit on the notified date. This will lead to significant improvements in systematic efficiency, customer service, as also reduce frauds.

## 2.2.6 Future Perspectives

“For banks, the internet is the future. Customers will increasingly demand internet services. If the bank does not provide internet services, they stand to lose customers, whether the revolution explodes this year, next year or soon thereafter, that doesn’t matter. It will happen. As a banker, they still have a chance to make their bank a leader in the next big thing to hit banking.”

([http://www.ecomputerlaw.com/articles/show\\_article.php?article=2006\\_online\\_banking;\\_it%60s\\_your\\_bank%60s\\_future](http://www.ecomputerlaw.com/articles/show_article.php?article=2006_online_banking;_it%60s_your_bank%60s_future))

“There will be over 121 million users of online banking services in Europe and the US by 2005, according to Datamonitor. Forty-nine per cent of these will be using online account aggregation services, which will allow customers to use one Web page to access multiple bank accounts with different banks. Customers will also be able to use the aggregation services to pay bills online and check the performance of their stock portfolio. The services will be available on any Internet-enabled device. While traditional banks are likely to be first to market with aggregation products, they will face serious competition from portals, lifestyle sites, and utility companies.”

(<http://rechtsinformatik.jura.uni-sb.de/cbl/cbl-news0801.php>)

Electronic banking isn’t new. Banks are already way ahead with profits created from electronic financial services like ATM’s, dial-up banking and telephone banking. The most important advantage of electronic banking is the lower costs associated with processing electronic transactions as compared to paper check or in person branch transactions. The extreme ease with which customers can access accounts over the Net also makes it possible to reduce the number of traditional and very expensive “brick-and-mortar” branches.

“The potential cost savings for internet banking is dramatic. An American Bankers Association study placed the cost of handling a paper checks transaction at between \$0.42 and \$2.00. Although internet banking is so new that the recovery of development and

start up investments skew transaction costs, the cost could ultimately rival the reported \$0.15 to \$0.50 cost of an ATM transaction.”

([http://www.ecomputerlaw.com/articles/show\\_article.php?article=2006\\_online\\_banking:\\_it%60s\\_your\\_bank%60s\\_future](http://www.ecomputerlaw.com/articles/show_article.php?article=2006_online_banking:_it%60s_your_bank%60s_future))

Because of the infrastructure and level of computerization in the industry, it is clear that banks in future are going to be modern with inter-connectivities facilitated by emerging technologies. In such a context, there is no other option left for Nepalese banks than to evolve a strategic vision that builds over the present technology base. The Central Vigilance Commissioner’s Notification on the subject will help banks to improve their internal vigilance administration. Computerization would lead to better resource management, and substantially reduce inter-branch reconciliation entries especially of those related to clearing and funds transfers. E-commerce will add new dimensions to information highway and thus lead to higher business volumes, efficiency and profitability.

“At the bedrock of the design of an integrated payments and settlement system is the Real time Gross Settlement System. The Real Time Gross Settlement System is being designed to provide large value funds transfer and settlement in an online real time environment to the banking industry, with settlement on a gross basis. An integral component of the Real Time Gross Settlement System will be the Delivery versus Payment module for trading and settlement in Government Securities transactions. The system would have link with other netting systems like Clearing, Automated Clearing House transaction comprising of Electronic Clearing Service, Retail Electronic Funds Transfer, all Plastic Money and Smart Card transactions and EFTPOS (Electronic Funds Transfer at Point of Sale).

Contingency plans for handling clearing operations include switching over to the Magnetic Media Based Input Clearing System, which can work both in a LAN environment and on a stand along PC. Other measures include stocking adequate amounts of cash in all the offices of the bank.

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 houses in Nepal. The Rastra Bank responding to the needs of business entities should offer ECS products. Electronic Clearing Service (Credit) is not yet available in Nepal while in our neighbor country India is already offering it ECS service at fifteen centers where the Reserve Bank has its offices, in addition to Pune where the service is being offered by State Bank of India. The number of transactions under ECS Credit has increased from 2.3 million in 1997 to 4.3 million as on December 31, 1998. The number of corporate institutions availing the ECS Credit service has increased from 69 in 1997-1998 to 88 in 1998-99. The scope for widening its coverage further seems to be very substantial. Electronic Clearing Service (Debit) is available at the four metropolitan cities. A pilot project on Retail Electronic Funds Transfer is also made operational at the four metropolitan cities. This type of electronic media has a growing market in Nepal. Nepalese banking sector should also encourage such facilities to increase the efficiency and speed of the remittance.” (Thapa, 2004: p:36-37).

“Reserve Bank of India had asked the banks in October 2005, to provide the required details to the customers in their pass book/account statement regarding the credits effected through ECS. Following were RBI notifications:

1. Electronic Clearing service (ECS) is increasingly being used by various users like Govt. Departments, corporate bodies, etc. for repetitive payments like salary, pension, dividends, interest, etc.
2. While ECS has proved to be of great convenience to both, the users and the beneficiary customers, there has been a rise in the number of complaints. The main complaint is that details provided by the banks in the Pass Book/Statement of Accounts for the ECS entries, are not complete and in the absence of details, reconciliation of transactions by the customers becomes very difficult. You would

appreciate that the Committee on Procedures and Performance Audit of Public Services (CPPAPS) (Tarapore Committee) has emphasized the need for full details of transactions in the statements.

3. It may be mentioned that in the ECS report (paper as well as electronic), a short abbreviation of the user name is provided to the banks to facilitate provision of details in the account statements. This abbreviation may be appropriately captured and utilized.
4. In view of the above, suitable instructions may please be issued to bank branches to provide the required details to the customers in their Pass Book/Account Statement regarding the credits effected through ECS. Appropriate technology solutions may also be adopted to make the above simpler.
5. Similar approach may be adopted for capturing the sender/remittance details for other electronic payment products like EFT, SEFT, RTGS, etc., as well.”  
(<http://www.banknetindia.com/banking/ecsstatement.htm>)

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.

“The development and use of communication networks has also helped the banking industry to gain in terms of improved bank services. We can see the effect of computerized banking in our neighbor country when they first started with BANKNET network, a leased line terrestrial network connecting seven major cities in the country viz., Mumbai, Delhi, Kolkata, Chennai, Hyderabad, Bangalore and Nagpur. RBI Net communication software, uses the BANKNET infrastructure for providing the facility of message and file transfer between branches of banks and across banks. Another significant milestone in this area is the operationalisation of the Shared Payment Network System (SPNS) of ATMs of the Indian Banks Association in Mumbai. The Network,

operational since February 1997, provides round the year electronic banking services to the customers of twenty-eight member banks. As on June 30, 1999 the network in Mumbai is operational with 101 ATMs of 28 member banks with a card base of 90,000 customers. This exponential growth can also affect the Nepalese financial sector. It is expected that as volumes increase, the number of ATMs will increase and will spread to other commercially important centers.

Around seven banks are already using the VSAT networks of third party service providers for various applications such as cheque collection advices, e-mail and some MIS related applications. Banks in Nepal are members of SWIFT- Society for Worldwide Inter-bank Financial Telecommunication Network. SWIFT is used for the transmission and receipt of all international financial messages by the member banks and financial institutions in the country. The scope for widening its coverage further seems to be very substantial.” (Thapa, 2004, p:3-4)

## **2.3 REVIEW OF RELATED STUDIES**

It has been noticed that the core banking products such as L/C, remittance, etc are being provided by almost all the banks, as such there is immense competitions. The key banking success nowadays therefore lies on the ability of the banks to provide subsidiary products such as credit cards, internet banking, SMS banking, securitization and other innovative products. Internet banking is relatively new concept in Nepal. There is no sufficient literature from previous thesis available on internet banking as no one has made any attempt to conduct research on this product of the bank in Nepal except foreign thesis, international journals, magazines, newsletters, articles and websites. 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 American, Indian based banks and others.

Credit card, one of the product of online or internet banking plays a significant role in the economic development of those nations which nations have encouraged its usage.

According to a development report by Visa International (Visa International, 2000) in 1998 over 185 million credit cards were issued in Asia Pacific Region alone, which was accounted for transaction worth over USD 330 billion. When this figure was compared to other regions such as European Union, North America, etc the volume was quite low. The growth in electronic terminals which execute transactions electronically was growing at an annual rate of 40% whereas the numbers of ATMs (Automatic Teller Machines) has grown at the rate of 25%.

According to Visa, the sales volume for Visa brand only in the Asia Pacific Region during December 31, 2000 reached US\$ 332 billion. For the same period card sales volume growth in Korea at US\$ 128.4 billion, Australia - at US\$ 45.6 billion, and Japan at US\$ 81.0 billion. (www.visa.com)

The most advanced and latest development in the credit card sector is the issuance of Smart card. A smart card is a plastic card, which has an embedded computer chip in it for storing and processing sensitive data. Today many organizations such as telecommunication companies, mass transit companies, government departments are issuing such credit cards. For example, Gujarat Government, a state of India, issues driving licenses based on Smart Cards.

Let's analyze the facts and figure regarding credit card in regard to Nepal's two neighbours, i.e, China and India.

### **China:**

China has maintained its real average growth of around 8% since 1978 making it one of the fastest growing economies of the world. This growth primarily back up from the government initiated foreign investment and exports. The growth slowed down to 7% in 1998 largely due to a less competitive export sector as neighboring countries depreciated their currencies while China maintained its pledge not to devalue Yuan.

To give massive boost to their economic growth by initiating domestic stimulus packages, in March 1999 the central bank (People's Bank of China-PBOC) announced policy revisions designed to encourage revolving credit card by:

- ) Cutting annual interest rate by 18.5% to 16.5%
- ) Introducing interest free grace periods.
- ) Abolishing the requirement for a security deposit.

As a result of which the nation has 30,000 international credit cards with the increasing numbers of foreign travel by Chinese citizens. In terms of local consumptions about 70% holds debit cards for online purposes and the rest 30% holds deferred debit cards. As per Visa International there is enormous growth potential in China. The PBOC had projected the figure of 300 million of cards by the end of 2007. China is enthusiastic about e-commerce and chip card technology, but significant infrastructure development is still to occur. (Visa International, 2000)

### **India:**

India has sustained average annual growth of around 6% since 1990. An economic liberalization program commenced in 1990 has continued to reform the economy and the market. The vision is to focus on the liberalization, increasing the role of private sector and opening India up to the global economy. Despite India's problem such political, infrastructure, security etc. foreign institutional investors have exhibited strong confidences. In case of payment cards, the foreign bank's share is estimated at 70-75%.

Citibank is the largest credit card issuer with close to 52% of the market, while Standard Chartered Bank is second with about 13% of the market. In 2000, there were only 2.5 million local Visa and Master Card issued. After the government made the Indian rupee convertible the usage of the international cards has increased manifolds. The prediction for the number of payment cards on issue by mid 2003 was around 10 million, which

have exceeded a way ahead. India has some promising long-term prospects due to the rise of middle class consumers and changing lifestyle. (Visa International, op-cit, p:34)

Laura Bradley & Kate Stewart (2003, p:272-281) has made the following conclusion in their study on “A Delphi Study of Internet Banking” that internet banking is universally seen as important within the future of retail banking. In operation terms, the significance of internet banking can be judged that 84% of banks are expected to have adopted internet banking by 2011. A very few banks will not have an internet operation of some sort. This is a very high level of adoption.

Yi-Shun Wang, Yu-Min Wang, Hsin-Hui Lin & Tzung-I Tang (2003, p:501-519) have found the following findings in their empirical study on “Determinants of user acceptance of Internet banking” that the millions of dollars that have been invested in Internet banking systems worldwide, it is of paramount importance to ensure that people will actually use them. In order to achieve this goal, attention must be given to designing easy-to-use, useful, and trustworthy systems. The Internet banking authorities need to develop the beliefs of usefulness, ease of use, and credibility of the customers regarding Internet banking. They can do so by organizing computer training courses to increase the general computer self-efficacy of the consumers. People with higher computer self-efficacy are more readily prepared to use the Internet banking services.

Damien Hutchinson and Matthew Warran (2003, p:64-73) have made the following conclusion about security for internet banking in their study on “Security for Internet Banking : a framework” that the framework of authentication for internet banking allows customers to work their way through each step, identifying the necessary security requirements along with the counteracting authentication mechanism.

The distinctive style of the framework, including explicit description, examples and cross-referencing capability, ensures all security requirements and authentication mechanisms are sufficiently identified for correct and effective implementation.

Philip Gerrard, J. Barton Cunningham and James F. Devlin (2006, p:160–168) has identified the various factors which explain why certain consumers are not using internet banking in their qualitative study on “Why consumers are not using internet banking”. The two most frequently mentioned factors were perceptions about the risks associated with internet banking and the lack of perceived need. Other less frequently mentioned factors were lack of knowledge of the service, inaccessibility, lacking the human touch, pricing and IT fatigue. The marketing campaigns which aim to encourage consumers to become internet bank users are likely to attract more males, the higher income groups, the better educated, those who have already used the internet to buy services and or goods and those who are knowledgeable about internet banking.

Tommi Laukkanen (2007, p:788-797) describes in “Business Process Management Journal” that customer perceived positive and negative value perceptions to complete the fund transfer via internet and mobile phone. The most noteworthy differences between these two channels are related to the location free access to the service and the display of the device. The most important contributor to mobile banking seems to be the ability use the service wherever wanted, which is related to the capability for immediate actions and time savings in service consumption. The keyboard and the display of the device seem to be the clearest inhibitors to the use of mobile bill paying service whereas in the use of the PC the case seems to be the opposite.

Pooja Malhotra and Balwinder Singh (2007, p:788-797) have found the following findings in their study on “Determinants of Internet banking adoption by banks in India” that larger banks, banks with younger age and banks which have large amounts of deposits are found to exhibit a higher probability to adopt Internet banking. On the other hand, banks with lower market shares and branching intensity and higher expenses for fixed assets and premises also tend to adopt Internet banking.

Thus, the banks have used Internet banking as a complementary channel to the existing branch network with an intention to increase the market share and lower the expenses. The category of the bank is quite important in affecting the probability of adoption of

Internet banking. In particular, it has been found that private banks (both domestic and foreign) tend to adopt Internet banking quicker than public sector banks. The adoption of this innovation by other banks increases the probability that a decision to adopt will be made. The least important variable is profitability.

According to a survey by Booz, Allen and Hamilton (Nathan, 1999), an estimated cost providing the routine business of a full service branch in USA is \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM (Automatic Teller Machine) banking and 1.5 cents for internet banking. This figure shows internet banking is less expensive than other online product of commercial banks. Nordea Bank, Finland (Echikson, 2001), spends an average of just 11 cents as an online transaction cost.

The impact of the new economy on the entire economic growth has been studied in several research projects. For example Pohjola (2002, p:133-144) in his book “The New Economy: Facts, Impacts and Policies” explains that the contribution of the use of information technology to growth of output in the Finnish market sector has increased from 0.3% in early 1990s to 0.7% in late 1990s. Similarly, research conducted in Estonia (2001, p:85-106) shows that the bank customers use bank office services on average 1.235 times per month, and wait in queue in bank office on average for 0.134 hours. This calculation shows that making payments via internet banking facilities rather than bank offices create overall economy savings in the amount of 0.93% of GDP.

Previous researches had found out that demographic characteristic such as education, age, and incomes are significantly associated with the usage rates of technological innovations. Dickerson and Gentry (1983, p:225-235) in their study on “Characteristics of Adopters and Non Adopters of Home Computers” have showed that the adopters of personal computers tend to be middle-aged, with higher income, and highly educated.

Venkatesh, V. and Morris, M. G. (2000, p:115-139) has mentioned that the decisions to adopt technology by men are mainly determined by the perceived usefulness of

technology use, whereas women, in contrast, are more influenced by their perceptions about a system's ease of use and social influences.

Katz, J. and Aspden, P (1997, p:70-188) in their research on “Motivations for and barriers to Internet usage: results of a national public opinion survey” have found the following findings about internet usage that income and education levels are especially relevant in explaining the use of internet services and other technological devices. Additionally to income, gender, age, and education effects, there is also evidence of ethnic differences in internet use.

The e-commerce consumer behavior model developed by Turban, Rainer and Potter (2003) in their book “Information Technology”(2<sup>nd</sup> Edition) stimulate a consumer to think about buying. Then, two types of factors influence the buying decision making process, individual factors and environmental factors.

Burnham, James B (1996) in his study on “The Growing Impact of Global Telecommunications on the Location of Work” found the following conclusion of his study that the majority of banks with websites spent less than US\$ 25,000 to create a web presence, and less than US\$ 25,000 a year maintaining it. He suggested that even if these figures were to rise as banks began to offer internet banking services, they would still be less costly than the traditional way of banking. From the consumer’s perspective, internet banking provides a very convenient and effective approach to manage one’s finances as it is easily accessible 24 hours a day and seven days a week. Besides, the information is current.

Kalakota and Whinston (1996, p:1-10) in their study on “Electronic commerce: building blocks of new business opportunity” have explained that for corporate customers, sophisticated cash management packages offered through internet banking provide them with up to the minute information, allowing for timely funds management decisions.

Internet banking channel offers less waiting time, higher spatial convenience and significantly lower cost structure than traditional distribution channels. The relative success of internet banking to data can be gauged by identifying the number of current and anticipated registered users. Barto G. L. (2005) in his book “E-banking 2005” has reported that more than 35 million consumers in the USA used online PC banking by the end of 2004. Also, Gandy, A (2004, p:35-69) showed that 9% of UK customers used PC based internet banking and this was expected to rise to 42% by 2006.

Mattila, M., Karjaluoto, H., Pento, T (2003, p:514-528) have found that the proportion of people in Finland who have adopted online banking is higher than anywhere else in the World. As early as 2000, almost 40% of all retail banking transactions in Finland was made over the internet. All Finnish banks offer a full range of internet banking services.

Amrit Bastola (2007, p:96-104) in his study on “Prospects and Challenges of E-banking in Nepal” has made following conclusion of his study that advances in information technology and telecommunications have certainly introduced new delivery channels for Nepalese commercial banks' products and services. These new delivery channels include automated teller machines (ATM's), mobile banking, Internet banking. Among these, the ATM's are the most widely accepted and highly utilized delivery channel. As per the information provided by banks, mobile banking seems to have good future prospects. PC banking is still not available in Nepal. However, about 35% of the respondents have Internet access at home and work and these represents a positive indication for PC-based banking and Internet banking in the future.

Vivek S. Rana (2004, p:1-22) in his presentation on “Banking and E-payment practices in Nepal” has found the following facts of the study that to develop e-payment in Nepal more utility companies are to form strategic alliance with the banks. At present Nepal Telcomm is only adopting e-payment. If this product is made online, these organizations can save up to 10% at a conservative estimate. Government should bring Electronic Transaction Act for financial institutions to boost consumer and financial institution’s confidence trust in the technology.

Rajib Subba (2006, p:1-25) mentioned in his presentation on “e-payment for SME Exporters: Drivers and Barriers” has found the following facts to develop Strategic and Policy Framework for e-Rupee.

### **National Level**

- NRB, Central Bank of Nepal, should change regulations to allow organizations, other than commercial banks, to sell plastic money.
- Recognition of electronic transactions, electronic contracts, electronic records and electronic signatures, Public key infrastructure and the establishment of a Certification Authority.
- e-Government: Government should introduce e-Rupee in public utility companies. Government should start using of electronic records and signatures.
- Mainstream SMEs towards e-Payment by effective promotion and assistance.

### **Regional Level**

- Create linkages for innovations.
- Regional cyber marketplaces using e-Payment mechanism like e-Rupee.

### **International Level**

Nepal definitely needs technical assistance from international organizations like UN, ITC, UNCTAD, WTO, WB, ADB in implementing e-payment infrastructure.

These organizations must play a major role in bringing support and know how in e-payment and other areas of e-Business in accordance with Nepal's membership to WTO.

Areas where assistance is needed are:

- ) Technology Policy and Management
- ) Regulatory and institutional framework
- ) Cyber security and Electronic Transaction Law
- ) Digital Signature, encryption and cryptography
- ) Public Key Infrastructure
- ) Certification Authority

Prabal Khanal (2006, p:1-29) in his presentation on “E-banking in Nepal” has made following conclusion that in Nepal there is around 200,000 internet users in Nepal and over 95% of Internet users are using dial-up internet access. 50% of the users are inside the capital city, Kathmandu and around 3000 users are using internet banking.

Ravindra Prasad Pandey, Executive Director, Bank Supervision Department of Nepal Rastra Bank (2006, p:24) explains that internet banking currently used by Nepalese Banks can be classified into two categories, informational and transactional. The informational website provides banking information including products, services, interest rate, foreign exchange rate, etc. On the other hand, the transactional website is a channel for customer transactions such as money transfers and bill payments as well as inquiries such as balance inquiries and statement download. Most of the banks are using informational website only. Banks which are using transactional websites are limited to intra-bank fund transfer from one account to another account of same customer.

In Nepal, Kumari Bank Ltd. was established in 2001 as the private sector bank which had first introduced Internet banking in 2002. Almost all the commercial banks is offering some sort of online features like ATM, Anywhere Branch Banking System (ABBS),

Internet banking, Mobile banking etc. Some of the banks like Standard Chartered Bank, Nepal Investment Bank, Himalayan Bank, Bank of Kathmandu, Siddhartha Bank are examples of online banks. The newly established banks like Global Bank Ltd., Citizens Bank International Ltd., Prime Commercial Bank Ltd., Sunrise Bank Ltd. are using sophisticated software, it supports full fledged internet banking facility.

## **2.4 REVIEW OF MIS THESIS**

Acharya (2002) carried out a study on “Implementation of MIS in RNAC – A case study in Marketing Department” and concluded that the implementation of MIS is necessary for the effectiveness of the department. The complex organizational structure and multidivisional structure of the marketing department is difficult to classify, it is necessary to made clear. The department needs network based computerized information system to eliminate the drawback generated by paper based information system and traditional way of centralizing the information and authority. The department also needs proper infrastructure for the implementation of MIS.

Based on the above conclusion, Acharya recommended that the organization should train and develop the capability of human resource to handle sophisticated equipments regarding information technology. It should maintain necessary infrastructure for implementation of MIS in the department. The management of RNAC must be committed to strictly implement policies, rules and regulation of RNAC to avoid unnecessary political pressure. Organization should implement a network based computerized information system.

Acharya carried out the study with the following objectives:

- To present and analyze existing information system of marketing department of RNAC.
- To examine the flow of information to co-ordinate and communicate different divisions and units of marketing information.

- To provide recommendations on the basis of major findings that has been drawn out in the research study.

Neupane (2002) carried out a study on “MIS – A significant tool for effective management of an organization. A case study in RNAC” and concluded that there is no doubt that use of computerized information system in organization can help to boost the efficiency and productivity of the organization. MIS and computer networking is an essential tool for effective management and handle day to day decision making functions of all levels of management of an organization. Other conclusions of this study are as follows:

- MIS satisfies the information needs of the people in a particular organization pyramid.
- Network based computerized information system is the first requirement for this organization to maintain modern information system.
- There is lack of well trained and skilled IT experts and manpower to maintain computerized information system within the organization and departments.
- MIS not implemented due to high cost and technical manpower.

Based on the above conclusions, Neupane gave the following recommendations:

- RNAC should implement MIS.
- It is essential to provide training of software packages and advance course of computer to all of the staff and executives of this organization to make them competent and able to handle various problems regarding modern IT and MIS.

- The managers, CEO and all decision making level personnel must use modern MIS and various software regarding DM and problem solving. For this, they need good knowledge of modern management, modern network base and information system and advanced computer knowledge to make their decision effective, organizational efficiency and higher productivity.
- In each modern organization are needs to provide enough training and development opportunities regarding modern IT related fields, i.e. hardware, software, networking and modern management skills to all levels of employees. It leads an organization always towards success and effectiveness.
- It should make plan of networking the variety of platforms with infrastructure detail name servers, routers, gateways, TCP/IP and networking strategy like LAN/MAN/WAN etc.

Neupane carried out the study with the following objectives:

- To study the practical and theoretical aspect of management information system
- To examine the practice of maintaining information system in RNAC.
- To study existing information system/flow of information in different departments, especially in personnel and general service department of RNAC.
- To study existing decision making process management system, management process of RNAC.
- To find out drawbacks of existing information system and provide recommendations for the betterment, if it is needed.

Pradhan (1986) had conducted a research study entitled “A study on Microcomputers and Computerization in Nepal”. He states that the computer has become very common in USA and Europe, computer have been part of their life because the large number of services they receive are computer supported. Computer supports activities involved in business, universities and schools, government and all the communication media. Scientists, teachers, businessman, engineers, doctors and other professional are also getting tremendous amount of help out of it, manufacturing, designing, teaching, planning , decision making etc. are aided by the computer. All these employ computers to process vast amount of data. The computers were developed to perform such task of swift calculation. The development and progress in these fields would have been impossible in the absence of these extra ordinary machines, which can handle complex and tedious calculations in a short period of time, which people cannot do or typically do not want to do.

His major findings significant till now are as follows:

- Microcomputer users are mostly business organization, foreign projects and foreign organization, government offices and corporation in Nepal.
- After the introduction of microcomputer in organization, the average productivity has gone up to 51.5% in particular field.
- The computer users were motivated towards computerizing using microcomputers was due to the growing need of the organization and the low cost of microcomputers. Thus, they are not buying it as a fashion.
- The microcomputer users and operators trained for average of 2.32 months only. About 81.2% users operator think they need further training to carry out the jobs independently.

- The computer users have procured their microcomputer considering mainly its price, brand name and company or availability.
- Most of the microcomputers are being used in Word Processing, Accounting, Statistical Analysis and software development.
- Most of the microcomputers have problem of power failure and diskette problem and losing data.

Joshi (2000) has concluded a research study entitled “Management Information System in Nepalese Bank: A case study of Rastriya Banijya Bank”. The study is focused on MIS in present context has become prominent factor for the development of any organization. The specific objectives of the study are:

- To highlight the financial system in Nepal.
- To highlight the banking system in Nepal.
- To highlight the MIS in Nepalese Bank.
- To highlight the importance of information and data.
- To provide a useful system of collecting data and information.

She concluded “The effectiveness of information system depends on competence of information. Information system should reflect the transaction carried out and has to determine the liquidity and solvency of the bank. Bank credit constitutes the bulk of a bank’s assets and it is certainly most profitable as well as the most risky assets in the balance sheets.”

Bhattarai (2003) carried out a study on a “Performance of MIS in Kumari Bank”.

Bhattarai carried out the study with the following objective:

- To identify factors affecting performance of MIS.

- To examine the existing situation of software personnel of the bank.
- To study the relation of training of end-users in the bank for improvement of the performance of MIS.
- To provide suggestions on the basis of the findings.

Bhattarai concluded that banks have installed the latest MIS software to manage their information needs, consolidation and streamlining in the software. Therefore the management of any organization should be aware of the various factors which affect the performance of MIS and take corrective actions as and when required. He further said that various factors like training to software personnel, training to end-users, good communication channels were identified which has a direct bearing on the performance of MIS.

Thapa (2005) has concluded a research study entitled “A study on using MIS to enhance ADBN performance” that the MIS is as a system which provides information support for decision making in the bank. The MIS is as an integrated system of man and machine for providing the information to support the operations the management and the decision making function in the organization. The MIS is as a system based on the database of the organization evolved for providing information to the people in the organization. The MIS department is a blueprint of overall function of organization. The MIS plays a vital role in the management, administration and operations of an organization. The MIS is modernized as a computer based information system. The system ensures that an appropriate data is collected from the various sources, processed and send further to all destinations. The MIS satisfies the diverse needs through a variety of system such as Query Systems, Analysis Systems, Modeling Systems and Decision Support System. The MIS helps in strategic planning, management control, operational control and transaction processing.

Based on the above conclusion, Thapa gave the following recommendations:

- The importance of information system is a management process. It brings about organization change and changes their work styles.
- The management of bank should concentrate on data collection from the various sources to analysis and conclude the future strategy. Such information will help the banker to move out to talk to the customer to obtain information for the bank. Such support will also reduce the risk of account going into the red and bad debt.
- The MIS is to monitor the variety of indices and ratios related to banking operation, which are internal to the banking services. Some of these models fulfill the statutory needs. Some meet the policy needs and so on. It is necessary to build information system application to support the bank manager in making decision to keep a different index, norms and ratios within the acceptable limits. He should also get support through decision to handle the problem of not meeting these statutory standards.
- There is a lot of human aspect in the banking operations. Any amount of mechanization and computerization is not a substitute to a service with a smile. The service may become faster or quicker but still requires a human touch and skill. It is, therefore necessary to upgrade the skills and knowledge of the bank employees to offer a proper service to customer & framers.
- The information system should identify organizational needs and offer help to the management in designing, training courses for the employees to improve their knowledge about banking world.
- The manager in the bank has the service as well as the financial goals to achieve. It is therefore necessary to serve the internal standard as the art, the accuracy, the

responsiveness and the timeliness. The system and the resources provided to achieve these standards need monitoring and the MIS will provide a feedback on this standard so they can be regulated and controlled.

- There are some important suggestion for the successful information circulation in banking operation.
- Remember that the system designer should respect the demand of the user.
- Should not challenge the application of the information in decision making. It is the sole right of the user to use the information.

Timalsina (2004) has concluded a research study entitled “Status of Subscriber Information System (A Case Study on Subscriber Information System of Space Time Network)” that every organization want to be a market leader of the industry. It is possible through increasing productivity of the organization. Organizational productivity can be increased in many ways. Proper information management is the one of the strategy to be a competitive and to increase productivity. It helps organizational people to make right and quick decision every time. Right decision is the key to success for every organizational activities.

The study has found some limitation of information management within organization. Firstly, the organizations establish the information system once and don't take care of it till it get late. Time to time modification and adoption of information system according to situation as necessary is rare. Secondly, organization do not train the employee to handle running information system. Thirdly, there is lack of proper integration of information system, focus is concentrated to only some part of whole system. Therefore, the benefit from the information system is limited due to underutilization of the system.

In order to develop sound information system in organization, organization should adopt and pace with new technological changes in its environment. On the other hand, it should

provide proper training to its employee so that system is used to optimum extent. Establishment of MIS department is one of the strategic decision for the information management. This division will take care of various factors, which affect the performance of information system of organization and suggest necessary corrective actions as and when needed. It also integrates all the information flowing within and outside the organization.

Based on the above conclusion, the investigator likes to recommend following facts to STN (Space Time Network) and it's SIS (Subscriber Information System):

- Since it is a time of technological revolution, STN should pay attention to computerize its activities. As far as possible, computer should be used instead of paper. It will surely increase efficiency of organization.
- STN should focus development of human resources through occasional training programs. Effective motivational tools should be used to increase productivity. Time to time visit of top level authorities to its branches is also recommended. Management should develop habit of employee considerations.
- Existing SIS should be used optimally. The use of SIS should not only be limited to structure decision making but it should also be used for semi structured and unstructured decision making. Prescribed potential uses can be used. And new creative productive use of current system should be searched.
- Training on SIS uses, should be conducted time to time to its users so that SIS is used optimally and operating efficiency is increased.
- STN should focus on making subscriber information system (SIS) based on real time and should confirm its accuracy. For this purpose networking should be done.

- STN should not hesitate to invest on decision making software and hardware tools, which helps analysis of information. It is good idea to invest on Decision Support System (DSS) module and let some employee to have training on DSS.
- There is option available for STN to redesign new SIS in different programming language, which possesses many database analysis features and other capabilities of information processing than currently used application. As far as possible SIS should be designed to extend human/machine interface.
- Investigator designed a counter simulation module which can be used in different ways and different for purposes. It can be used for payment prediction of any counter by middle level management and for analyzing strategic scenarios for decision making by top level management. It can be used as alternative method for analyzing and predicting cash collection, which is more accurate. Not only that counter simulation module can be used for increasing effectiveness and performance of counter.
- STN should establish MIS division to manage the information flowing in and out of the organization and make its information system up-to-date and productive.
- STN should focus on MIS rather than focusing on SIS, which is essential part of MIS. STN should properly integrate its SIS with MIS.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter is designed and followed to fulfill the stated objectives as well as to make it easier in visualizing the study work clearly. So, this chapter presents the suitable methodologies followed to achieve the set objectives of the study. For this, it consists of the sources and nature of data, sampling procedure, pilot test and analysis, data mining, presentation and analyzing tools used in this study.

#### **3.2 Sources and Nature of Data**

The study is descriptive as well as analytical one. So, analysis of this study is primarily based on primary data and secondly on secondary data. The primary data have been collected by means of direct personal interview with sampled banks of the study area. Similarly, required supportive primary data have been collected by means of interview with key persons, officials and staff working in commercial banking sector. The secondary data are used only for the purpose of theoretical review. The secondary data have been taken from published and unpublished books, internet sites of commercial banks.

#### **3.3 Population**

For the purpose of the study, population has been defined in term of commercial banks within Kathmandu Metropolitan City. There are altogether 26 commercial banks in Nepal.

**Table 3.1**  
**Distribution of Population Frame**

<b>S. No.</b>	<b>Commercial Banks</b>	<b>Estd. Date</b>	<b>Head Office</b>
1.	Nepal Bank Ltd.	1994/07/30	Kathmandu
2.	Rastriya Banijya Bank	2022/10/10	Kathmandu
3.	NABIL Bank Ltd.	2041/03/29	Kathmandu
4.	Nepal Investment Bank Ltd.	2042/11/16	Kathmandu
5.	Standard Chartered Bank Nepal Ltd.	2043/10/16	Kathmandu
6.	Himalayan Bank Ltd.	2049/10/05	Kathmandu
7.	Nepal Bangladesh Bank Ltd.	2050/02/05	Kathmandu
8.	Nepal SBI Bank Ltd.	2050/03/23	Kathmandu
9.	Everest Bank Ltd.	2051/07/01	Kathmandu
10.	Bank of Kathmandu Ltd.	2051/11/28	Kathmandu
11.	Nepal Credit & Commerce Bank Ltd.	2053/06/28	Kathmandu
12.	Lumbini Bank Ltd.	2055/04/01	Chitwan
13.	NIC Bank Ltd.	2055/04/05	Biratnager
14.	Machhapuchhre Bank Ltd.	2057/06/17	Pokhara
15.	Kumari Bank Ltd.	2057/12/22	Kathmandu
16.	Laxmi Bank Ltd.	2058/12/19	Birgunj
17.	Siddhartha Bank Ltd.	2059/09/10	Kathmandu
18.	Agriculture Development Bank Ltd.	2062/12/03	Kathmandu
19.	Global Bank Ltd.	2063/09/18	Birgunj
20.	Citizens Bank International Ltd.	2064/03/07	Kathmandu
21.	Prime Commercial Bank Ltd.	2064/06/07	Kathmandu
22.	Bank of Asia Nepal Ltd.	2064/06/25	Kathmandu
23.	Sunrise Bank Ltd.	2064/06/25	Kathmandu
24.	Development Credit Bank Ltd.	2057/10/10	Kathmandu
25.	NMB Bank Ltd.	2053/08/11	Kathmandu
26.	Kist Bank Ltd.	2059/11/09	Kathmandu

*(Source: Banking & Financial Statistics, Mid-Jul.2008)*

### **3.4 Sample of the Study**

Total population has been taken as sample.

### **3.5 Data Collection Instruments**

The study is based primarily on primary data and secondly on secondary data. The primary data are collected from structured interview with sampled commercial banks. The questionnaire is designed on the basis of consultation with thesis supervisor and key informants.

#### **3.5.1 Pilot Test and Analysis**

In order to finalize the designed data collection instrument, pilot test is done. Nepal Bank Ltd., Head office, Kathmandu is selected for the pilot testing. The employees of the bank administrated the designed questionnaire for interview. The questionnaire is finalized only after the incorporation of the feedback received from the pilot test.

#### **3.5.2 Data Collection**

The questionnaire for interview is finalized after incorporating the feedback received from the pilot test and consultation with the key informants. For the purpose of the administration of interview, interview schedule (See Appendix 1) is prepared. As per this schedule, the researcher visited at the bank and administered the structural interview.

### **3.6 Data Mining**

After taking the interview with employees and directors of the sampled banks, filled out questionnaires are edited to ensure the responses of all questions are complete.

Then, responses of respondents are coded and entered into the computer by using Microsoft Excel program. The computer program processed all of the responses and prepared master sheet of data. Data entered into the computer are corrected on the basis of the printout of the master sheet. After correcting the data entered into the computer, required tables are prepared and made ready for analysis and presentation.

### **3.7 Presentation and Analysis Techniques**

The study is descriptive as well and analytical one. No complicated statistical tools have been used in this study. So, for this research, collected data are presented the tabular form, simple bar diagram and pie chart. The analysis of data has been done through various ways like percentage, average, etc. after presenting and analyzing the information, necessary conclusions and recommendations are drawn.

### **3.8 Limitations of the Methodology**

1. This study is only for partial fulfillment of MBS degree and prepared within time constraint which weakened adequacy of the study.
2. This is a descriptive study only on future prospective of internet banking in Nepal.
3. The whole study is based the opinion survey of different professionals which may not be free from limitation due to individual response.
4. Among many factors affecting internet banking, only future prospective will be studied.

## **CHAPTER IV**

### **DATA PRESENTATION AND ANALYSIS**

#### **4.1 Introduction**

This chapter presents the analysis and findings of the study. It includes the analysis of various activities performed by existing commercial banks on uses of internet services and potentialities of service in near future to the customers as well as bankers of Nepal.

#### **4.2 Data Presentation and Analysis**

This section deals with the presentation, analysis and interpretation of data collected from primary source, it includes present status, future expectations, and different internet services to different types of banking activities.

##### **4.2.1 Present Status of Traditional Banking System in Nepal**

As the banking sector of Nepal is still shy of accepting the need of IT in its services. Some of the Government based banks are still using traditional method of providing services to the customers. In the last few years competition in this sector has been increased and the people are now conscious about the importance of easy and fast transactions e.g. fund transfer, etc. To find out the performance of traditional banking system researcher has conducted a survey and out of 300 respondents only 5% are satisfied with the traditional banking system. Rest of the 95% respondents want immediate technical improvement in their service system. The Table & Figure below specify the number of respondents who are satisfied or dissatisfied with the traditional (Paper based) banking system.

**Table 4.1**  
**Present Status of Traditional Banking System**

<b>Traditional Banking System</b>	<b>No. of Respondents (%)</b>
Satisfied	5
Not-satisfied	95
<b>TOTAL</b>	<b>100</b>

**Figure 4.1**

According to Table & Figure 4.1 drawn on the basis of questionnaire conducted to 300 respondents from different commercial banks only 5% respondents working in commercial bank seem satisfied with the existing system. Rest of the 95% respondents feel the bank should imply online services to provide better facilities to them. While asking about the difficulties faced with the traditional banking system 95% of the respondents who are not satisfied with the traditional banking system complained about the time delay. As per survey report 1% of the respondent think that reliability is the main difficulties.

**Table 4.2**  
**Difficulties/Problem with Traditional Banking System**

<b>Difficulties/Problem</b>	<b>No. of Respondents (%)</b>
Time	93
Cost	1
Reliability	1
Staff Behavior	5
<b>TOTAL</b>	<b>100</b>

**Figure 4.2**

As per Table & Figure 4.2 customers are less attentive to the cost compare to the time and proper care taken by the bank. As per survey result 5% feels that the behavior of the staffs are not proper while 93% think that the main problem faced by the traditional banking system is the time factor. They think if the banking services goes online they will escape from the long queue of the bank and they don't have to face the irritating behavior of the staffs, they can do their transactions sitting inside their room. It will save their time as well as cost.

#### **4.2.2 Present Status and Future Prospective of Internet Banking Service in different Commercial Banks**

It is obvious from the survey that most of the customers are not satisfied with the existing system and they want technical improvements. To know the feasibility of internet banking in Nepal researcher has conducted the survey with different customers from different commercial banks and the opinion of the respondents shows that 95% of the respondents think that it is fully feasible while 5% are against the implementation of internet banking system. As the results of the survey shows that 100% of the respondents who wanted to implement online services, feel that the introduction of internet banking will drastically reduce the processing time. It will positively effect the customers as well as banks. Due to the time factor internet banking services seems invisible in the banking sector. Lot of respondents has not experienced the internet banking yet. According to the response given by the customers related with the banking sector. 99% of them are fully aware about the online banking services like ATM, ABBS, Tele Banking. As the commercial banks are make compulsory to join SWIFT so 100% of the respondents fully aware about the SWIFT services. But less number of respondents is well aware about the internet banking. Because initially these services was introduced by some of the commercial banks like Standard Chartered Bank, Everest Bank, Himalayan Bank to name a few. But due to the competitions that arise in banking industry, now almost commercial banks like newly established banks Global Bank Ltd., Citizens Bank International Ltd., Prime Commercial Bank Ltd., Sunrise Bank Ltd. are also providing internet banking along with ABBS service to this customers which supports full fledged online banking services.

Initially, Internet banking in Nepal was only used by the Kumari Bank and Machhapuchare Bank. They were providing some of the features of online banking like account check, statement print and some jobs of remittance while it was under the testing phase and was not fully functional. But now internet banking is used by 21 commercial banks as per the below table. Therefore, we assume that internet banking in Nepal is increasing day by day due to the competition that arises in the banking industry.

For commercial banks, the internet is the future. Customers will increasingly demand internet banking. If the banks can't provide internet banking, they lose their customers.

The following Table 4.3 shows the online services currently in use and the banks which provide these services.

**Table 4.3**

<b>Banks</b>	<b>ATM</b>	<b>ABBS</b>	<b>SMS Banking</b>	<b>Internet Banking</b>	<b>SWIFT</b>	<b>Credit Card</b>	<b>Debit Card</b>
Nepal Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Rastriya Banijya Bank	Y	Y	Y	Y	Y	N	Y
NABIL Bank Ltd.	Y	Y	N	Y	Y	Y	Y
Nepal Investment Bank Ltd.	Y	Y	N	Y	Y	Y	Y
Standard Chartered Bank Nepal Ltd.	Y	Y	N	Y	Y	Y	Y
Himalayan Bank Ltd.	Y	Y	Y	Y	Y	Y	Y
Nepal Bangladesh Bank Ltd.	Y	Y	Y	N	Y	N	Y
Nepal SBI Bank Ltd.	Y	Y	N	Y	Y	N	Y
Everest Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Bank of Kathmandu Ltd.	Y	Y	Y	Y	Y	Y	Y
Nepal Credit & Commerce Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Lumbini Bank Ltd.	Y	Y	Y	N	Y	N	Y
NIC Bank Ltd.	Y	Y	Y	N	Y	N	Y
Machhapuchhre Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Kumari Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Laxmi Bank Ltd.	Y	Y	N	Y	Y	Y	Y

<b>Banks</b>	<b>ATM</b>	<b>ABBS</b>	<b>SMS Banking</b>	<b>Internet Banking</b>	<b>SWIFT</b>	<b>Credit Card</b>	<b>Debit Card</b>
Siddhartha Bank Ltd.	Y	Y	N	Y	Y	N	Y
Agriculture Development Bank Ltd.	N	N	N	N	Y	N	N
Global Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Citizens Bank International Ltd.	Y	Y	Y	Y	Y	N	Y
Prime Commercial Bank Ltd.	Y	Y	Y	Y	Y	N	Y
Bank of Asia Nepal Ltd.	Y	Y	Y	Y	Y	N	Y
Sunrise Bank Ltd.	Y	Y	N	Y	Y	N	Y
Development Credit Bank Ltd.	Y	Y	N	N	Y	N	Y
NMB Bank Ltd.	Y	Y	N	Y	Y	N	Y
Kist Bank Ltd.	Y	Y	Y	Y	Y	N	Y

(Source: Official Websites of Commercial Banks)

\* N = No

\* Y = Yes

The below Table 4.4 & Figure 4.3 represent the services currently provided by the commercial banks in Nepal. We can see that SWIFT is the only service which is used by all the commercial banks while Credit Card facility is given by 6 banks till now. ABBS system is catching up fast, almost commercial banks are already using this service. ABBS facility allows customer to draw their amount from any branch located in Nepal. Tele-banking was introduced in 1997 by Himalayan Bank Limited to check customers account balance through phone line. It was not so successful and now it has been replaced by the internet banking or SMS banking services. Now, most of the commercial banks are fully computerized and due to the competition, we can see from the figure that all the commercial banks are using various types of online banking.

The main aim of introducing internet banking is to make the transactions smooth and easier. Although it will seem to be complicated in the beginning but after the usage of these services customer will become habitual of it and the banks which are not accepting this opportunity will have to face a biggest technical threat.

**Table 4.4**  
**Online Services provided by the Commercial Banks**

<b>Online Services</b>	<b>No. of Service Provider Banks</b>
ATM	25
ABBS	25
SMS Banking	16
Internet Banking	21
SWIFT	26
Credit Card	6
Debit Card	25

**Figure 4.3**

### 4.2.3 Expectation of customers from Internet banking service

While asking about what type of services or transactions they wanted to do through the online system the respondents want all the services like account opening, fund transfer, loan processing and online bill payment. The Table 4.5 & Figure 4.4 describes the expectations of customers from the online banking services.

**Table 4.5**  
**Expectation of Customers from Internet Banking Services**

<b>Customers Expectation</b>	<b>No. of Respondents (%)</b>
Account Opening	5
Fund Transfer	85
Loan Processing	5
Online Bill Payment	5
<b>TOTAL</b>	<b>100</b>

**Figure 4.4**

According to Table 4.5 & Figure 4.4, 85% of the respondent wanted to make their fund transfer online, so that they can save their time and cost, while 5% prefer account opening and 5% focused on loan processing services. As the online bill concept is

completely new to the Nepalese society and less number of people knows about this service. Only 5% of the respondents show interest in online bill payment. While online payment of bills and loan installments will be the priority in the near future, like in western countries.

#### **4.2.4 Willingness to start Internet Banking Service by Banks**

Out of 26 banks in the table 3.1 all banks are providing some type of online services like ATM, Debit Card, ABBS, SWIFT & Internet Banking. But Kumari Bank Ltd. and the Machhapuchare Banks are fully online functional banks. They have started internet banking so we can say that the technical competition in the banking sector has started already. Some banks like Standard Chartered Bank Ltd., NABIL Bank, Nepal Investment Bank Ltd., Laxmi Bank Ltd., Bank of Kathmandu Ltd. have introduced Credit Cards facilities till now. Now, Government owned banks like Nepal Bank Ltd. (The first commercial bank of Nepal) and Rastriya Banijya Bank have been computerized and they are providing online banking services like ABBS, ATM, Debit Card, SMS Banking, Internet Banking, SWIFT facilities etc. Nepal Investment Bank Ltd. is introducing Debit Card first time in Nepal.

Comparing to the government owned banks other commercial banks are providing more online services and improving their technical efficiency day by day. 9 banks out of 26 listed in table 3.1 are using PumoriPlus software. It is indigenous software developed by mercantile. This software has some bucks while connecting online. 3 banks are using Globus system software. This one proves to be the best online software for the banking sector. But the initial investment on this software is much higher than the other software. Banks like SBI is using Indian made software. So we can see that the homogeneity of the banking software is one of the main problems in interconnecting the different banks.

From the below Table 4.6 & Figure 4.5, we can find out the reasons of banks look interested in introducing online services. In the age of IT those industry will be sustaining who can manage their time properly or take decision in time. Online services will

drastically enhance the efficiency of decision making or processing of any job. That is the reason 90% of the respondents from the banking sector has chosen the time as one of the main factor besides cost, reliability and easy accessibility.

**Table 4.6**  
**Important Factors of Internet Banking Feasibility**

<b>Factors</b>	<b>No. of Respondents (%)</b>
Cost	8
Reliability	1
Easy Accessibility	1
Time	90
<b>TOTAL</b>	<b>100</b>

**Figure 4.5**

#### **4.2.5 Internet Banking Service Charges**

When the respondents were asked about the charges to be made on the internet banking services, 100% of the responded with no charge required. But as to maintain the minimum cost minimum fee should be charged in the beginning. In western countries

some banks provide free internet banking services. In Nepal, Kumari Bank Ltd., Siddhartha Bank Ltd., Himalayan Bank Ltd., Prime Commercial Bank Ltd., are some of the example which are providing free internet banking services to its account holders.

#### **4.2.6 Security Threat or difficulties in implementation of Internet Banking Services**

Although one cannot ignore the importance of IT in banking sector. While the whole world is going online and the threat of digital division is increasing day by day. It is the do or die situation for any service sector to introduce state of the art technology. But the implementation aspect of this service is not free of bug and threats. While conducting survey about the difficulties in implementation of the online service first factor was lack of computer knowledge and the second most important factor was security reason. The Table & Figure shows the difficulties in implementation of the internet banking service.

**Table 4.7**

#### **Difficulties in implementation of Internet Banking**

<b>Security Threat</b>	<b>No. of Respondents (%)</b>
Not Reliable	5
No Computer Knowledge	80
Security	15
<b>TOTAL</b>	<b>100</b>

**Figure 4.6**

Table 4.7 & Figure 4.6 indicates that 80% think due to the lack of computer knowledge it will be quite difficult to implement full fledged internet banking in Nepal. This situation is prevailing right now but as government and private sectors are concentrating towards the spread of IT education it won't be last longer. Most of the urban area people are learning the use of IT and people are already sending their children for computer education. Security is the second most important technical as well as social problem which may create some obstacle in the successful implementation of the online transactions. As per the result 15% of the respondents are not sure about the security of the online services. According to them stealing credit card number or hacking passwords are the main problems. In this regards software companies like Microsoft and Verisign are working hard. Now we can take third party help to make our online transaction more secure. Now a days banks provide you with PIN (Personal Identification Number), this number has two or three level of password which is very difficult to crack. So it won't be an easy task to crack or hack the system. Last category of the respondents feel it is not reliable. But as the researcher point of view more the usage of the online services will increase more people will start believing on it.

### **4.3 Major Findings of the study**

On the basis of the survey major findings of the study are as follows:

- 1) Only 5% are satisfied with the traditional banking system. Rest of the 95% respondents want immediate technical improvement in their service system.
- 2) As per survey result 5% feels that the behavior of the staffs are not proper while 93% think that the main problem faced by the traditional banking system is the time factor.
- 3) According to the opinion of the respondents shows that 95% of the respondents think that it is fully feasible while 5% are against the implementation of internet banking system. As the results of the survey shows that 100% of the respondents who wanted to

implement online services, feel that the introduction of internet banking will drastically reduce the processing time.

4) Only 50% of the respondent has practically used the online services. According to the response given by the customers related with the banking sector 99% of them are fully aware about the online banking service like ATM, ABBS, Tele banking.

5) SWIFT is the only service which is used by all the commercial banks while Credit Card facility is given by 6 banks till date. ABBS system is catching up fast, almost commercial banks are already using this service.

6) 85% of the respondent wanted to make their fund transfer online so that they can save their time and cost, while 5% prefer account opening and 5% focused on loan processing services. Only 5% of the respondents show interest in online bill payment.

7) When the respondents were asked about the charges to be made on the online bank services, 100% of them responded with no charge required.

8) It indicates that 80% think due to the lack of computer knowledge it will be quite difficult to implement full fledged online banking in Nepal. As per the result 15% of the respondents are susceptible about the security of the online services.

## **CHAPTER V**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter summarizes the whole study and is divided into three sections – summary, conclusions and recommendations. The first section deals with summary. The second one contains the major facts of the study, and the third one presents the recommendations for the implementations of the internet banking in Nepal.

#### **5.2 Summary**

It is obvious that banks in future cannot survive without the support of information technology. This is not a time to think whether to computerize or not, but to think how soon we are going to be connected to the online services. From all indications, banks should to be prepared to exploit the opportunities that globalization and financial liberalization provides. In this context, the environment in which banks are operating in Nepal, and to the compulsions that work to make computerization in banks an imperative. Computerization of branch operations, controlling offices and the head offices has been going apace particularly sharply in recent times since that is the only way by which senior management's 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 commercially important centers across the country. The large functional and geographical spread of banks has led to a sharp growth in the number of accounts and in the areas of operation of banks. This has necessitated switchover from hard cash to paper based instruments.

The advent of the internet and the popularity of personal computers presented both an opportunity and a challenge for the banking industry. Now that its customers are connected to the internet via personal computers, banks envision similar economic advantages by adapting those same internal electronic processes to home use.

With the help of internet banking service customer can check his account details, transfer his money, and pay their bills through the internet within a small span of time. As internet destroyed a 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 hour, anywhere in the world. Another important benefit of the online services 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 cannot 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.

As Nepal has entered the global market by getting the WTO membership. Because of that the transactions system will be more voluminous. The trade & commerce sector is growing up in Nepal. Since the banking transactions increases every year, the needs of the automated remittance system also increases which force to provide more facilities to the business customers in a reliable and timely manner.

### **5.3 Conclusion**

According to the survey done by the researcher only 5% are satisfied with the traditional banking system. Rest of the 95% respondents want immediate technical improvement in their service system. Respondents feel the bank should imply online services to provide better facilities to them. While asking about the difficulties faced with the traditional banking respondents complained about the time delay as the main factor besides staff behavior and reliability.

Due to the time factor internet banking services seems invisible in the banking sector. At present SWIFT and ABBS are the services which are used by all the commercial banks while Credit Card facility is given by 6 banks. Till now, 21 banks out of 26 are adopting the practice of internet banking service. They are using ABBS system to transfer money. This system is catching up fast as per research, almost banks are already using this service. The main aim of introducing internet banking is to make the transactions smooth and easier.

Regarding the advantages to the customers they can transfer their fund, pay their bills or installments of loan online just pressing some keys on the computer, so that they can save their time and cost. As the online bill concept is completely new to the Nepalese society it will catch up the market as soon as introduced. Online services will drastically enhance the efficiency of decision making or processing of any job.

When the respondents were asked about the charges to be made on the online bank services, 100% of them responded with no charge required. Bank can provide this facility free of charge so that the customer will attract towards this service. Regarding implementation, research indicates that due to the lack of computer knowledge it will be quite difficult to implement full fledged internet banking in Nepal. This situation is prevailing right now but as government and private sectors are concentrating towards the spread of IT education it won't be last longer. Security is the second most important technical as well as social problem which may create some obstacle in the successful implementation of the online transactions. As per the research customers are susceptible about the security of the online services. Nowadays banks provide us with PIN (Personal Identification Number), this number has two or three level of password which is very difficult to crack. Government is almost in a verge to introduce cyber law. It will fully secure our transaction online and pave new ways for the success of internet banking in Nepal.

## **5.4 Recommendations**

As the study indicated that we have a vision of an integrated payments and settlement system for the country with a network of branches with Straight through processing as the goal. For such a system to be functional we need to have standards based solutions for the banking and financial sector from multiple vendors. The standards based solutions should necessarily consist of open system architecture, with scalability as its main feature for taking care of future volumes in growth. The IT industry should closely collaborate with the banking sector in providing such services at cost effective prices.

There is one threat in electronic banking that we face but is rarely mentioned openly, namely the fear of hacking and tampering of data. Secrecy is the essence of banking transactions. The security products both hardware based and application software based, should address the twin issues of taking care of customers interests and also ensure secure funds transfer.

It is interesting as well as important to note that in order to minimize frauds, the Central Vigilance Commissioner (CVC) should direct all banks to compulsorily offer Electronic Clearing Services (ECS) to their customers. There should be some Governmental Organization, which would provide the communication backbone for the ECS service. ECS services will ensure that customers get the credit on the notified date. This will lead to significant improvements in systematic efficiency, customer service, as also reduce frauds (for example – the fraudulent encasement of dividend / interest warrants). Further, extensive computerization would lead to better resource management, and substantially reduce inter-branch reconciliation entries especially of those related to clearing and funds transfer. E-commerce will add new dimensions to information highway and thus lead to higher business volumes, efficiency and profitability.

The IT industry should be in readiness to provide such full proof solutions of security including the encryption of data based on internationally recognized security standards. The role of Certification Authority has to be clearly defined in this regard.

Should the network service provider be the Certification Authority or should it be a trusted third party, or an association of banks themselves? For example, SWIFT, though a Service Provider also acts as Certification Authority. It is not clear whether the service providers in Nepal are ready to do so at this juncture. The IT industry should help us in resolving this issue by recommending and educating the banking sector on the best practices that are followed globally in this regard. This is where transparency is not visible and the researcher would strongly suggest that there association should come out with simple, readable literature on the subject.

Another vital area where the IT industry can contribute significantly is in the setting up Credit Information Bureau. The NRB has in fact set up a Working Group to examine the modalities of setting up a Credit Information Bureau. The help of banks in monitoring their assets as also in providing instantaneous information on defaulters to the participants of the Credit Information Bureau without getting into legal hassles is of utmost importance but not sufficient attention has been given to providing information to banks on the part of service providers. In particular, data warehousing and data mining would come to play a crucial role in giving such information.

As the challenges before us are manifold and varied we need to have a coordinates approach. Banks, Nepal Bankers Association, Service Providers, Vendors, Government of Nepal – Ministry of Finance, Department of Telecommunications and the Nepal Rastra Bank need to evolve a consensus approach on issues that need resolution. Constitution of a National Payment Council by the NRB to design and develop the Integrated Payment and Settlement Systems should be a better step in this direction. Many more steps need be taken in future. CAN (Computer Association of Nepal) with various software vendors under its umbrella and outside and the Nepalese Bank's Association have been initiators of change. More steps are required to be taken to facilitate greater coordination. The IT industry should gear itself to meet the requirements of the banking and financial sector with a spirit of cooperation and partnership in making the banking industry scale the heights of international excellence. A productive approach is therefore, essential between the two sectors.

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### **Brochure :**

*Bank of Kathmandu's Internet Banking "BOK Click" Brochure*

## QUESTIONNAIRE

Dear Respondent,

The following questionnaire is for my Master in Business Studies thesis entitled “Internet Banking in the context of Nepalese Commercial Banks.” The information you provide is only for educational provision only. Thank you in advance for your cooperation and valuable time that you are dedicating.

### Personal Information

Name of Bank : .....

Name of Respondent :.....

The Respondent Position :.....

1. Are you satisfied with the traditional banking system ?

Yes                       No

2 What is the most important problem with traditional banking system ?

Staff Behavior     Time         Cost         Reliability

3. Have you heard about the services like ATM, ABBS, Tele banking, etc ?

Yes                       No

4. What type of online services is currently in use ?

ATM                       ABBS         SMS Banking         Internet Banking  
 SWIFT                       Debit Card  Credit Card         All of the above

5. What facilities do you want from this internet banking ?

Account opening

Loan processing

Online bill payment

Online fund transfer

6. Which is the most important factor of feasibility ?

Time

Cost

Reliability

Easy Accessibility

7. Do the online banking services should be charged ?

Yes

No

8. What are the difficulties with the internet banking system ?

Not reliable

Security

No computer knowledge