Factors Affecting the Adoption of Internet Banking in Nepal

A quantitative study of Nepalese Banking sector

MSc in Innovation and Entrepreneurship

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Abstract

The purpose of this thesis is to identify and analyze the relationship between consumer intention and different attitudinal factors like Perceived Usefulness, Perceived Ease of Use, Facilitating condition, Self-Efficacy, different risk factors, Trust and Internet banking adoption in Nepal.

The survey method was used to gather the information (data). In total, 210 valid samples were collected and multiple regressions were used to test the research model.

The results show that Attitudes, Perceived Usefulness, Perceived Ease of use, Trust and financial risk significantly influence consumers' intentions toward adoption of internet banking in Nepal. The contribution and implication of the research, limitations and further research are presented.

Keywords: *Electronic Banking (E-banking), Internet banking, Nepal, Technology Adoption, Trust, Attitude, Intention*

List of Abbreviation

TAM	Technology Acceptance Model
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
FC	Facilitating Condition
SE	Self-Efficacy
ATT	Attitude
INT	Intention
SR	Security Risk
FR	Financial Risk
PR	Performance Risk
SOCR	Social Risk
TR	Time Risk
WTO	World Trade Organization
ATM	Automatic Teller Machine
NRB	Nepal Rastra Bank
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behavior
IB	Internet Banking

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1 Introduction

1.1 Overview

Information technology and its advancement make human life easier and more manageable. There is growing use and impact of information technology in almost every aspects of human life. The internet is one of the most important innovations in the field of Information Technology, and now-a-days there is a growing use of the internet in personal life as well as in business transactions. Now-a-days every business house uses internet to conduct their business online to provide a more personalized service to their customers in the form of value addition. At the same time, today's world is global and there is no restriction to expand one's business and financial transactions worldwide. So internet is very much essential for the banking sector to cope with this technologically equipped world and to maintain the global marketplace. Therefore, internet banking is also one of the growing innovations around the world. There is a vast difference between the use and development of technology in the well-developed western countries and developing as well as underdeveloped south Asian countries. Slow adoption of technology, infrastructure of the business companies and the education as well as awareness of the common people play an important role in this regard. All these factors are also essential to the adoption of technologies in the promotion of one's business. In addition, there may be some other factors like Trust, risk, security and other different social and cultural factors which prevent the business houses from the adoption of technology. The present research concentrates on investigating the important factors affecting the acceptance and implementation of internet banking in Nepal.

1.2 Background of the Study

Bank is a financial institution that deals with money and plays an intermediary role, as it takes deposits from the customers and provides loan to people. A bank survives with the income that is the marginal difference between the interest it provides to the depositors and it takes on the loans. Besides, banks provide a different kind of services to their target market customer. Now-a-days every kind of bank relies on information technology to provide better services to the customer. As it has already been mentioned that to cope with the modern advanced world and with the pace of technological advancement and changing world-

economies, every bank relies on internet service to facilitate the better value to the customers. With the development of information technology infrastructure, and the internet, most of the banks today are providing the services through the internet. Thus, the internet has become one of the value distribution channels of the banks.

With the rapid development on the internet, its coverage has become broader. While analyzing the development trend worldwide, especially USA, and European countries are more ahead to develop new technology and its adoption. Although education, accessibility of resources and established infrastructure are the more known facts that affect the adoption of technology in the banks, there may be some other factors that may not be so apparent. Some Asian countries are already in the developed phase. Nevertheless, some are in the developing phase, and there are still some countries which are underdeveloped, in which it is very difficult to adopt some new technologies in any of the area. Thus, it may not be relevant to compare the technology and their adoption and advancement in Europe, America and in south Asian countries. Because of the lack of education, and awareness powered by security, trust and risk, people are afraid to accept the change in any sector. In the underdeveloped and developing countries, many banks and financial institutions are providing services related to internet banking. However, because of lack of technological infrastructure and the factors like trust and risk, this service is not as attractive in the South Asian countries as it was supposed to be.

1.3 Problem Definition

In Nepal, almost all the banks adopt the branch-based retail banking service. Because of the geographic condition, this approach is the most suitable one in the countries like Nepal.

Now-a-days internet banking is rapidly growing and changing the way of doing businesses and providing services too for the personal finance and other banking service. In the Nepalese case also, most of the commercial banks are trying to introduce internet banking to improve their operations and to minimize the cost. Though they are providing such services customers are unaware of that kind of service. So there is a great need to know the perception of customers and their intension to use the internet banking so that in future it would be more beneficial for the bank management as well as the customers to minimize the cash transaction and get the better services from the bank. Many banks in Nepal are providing different online services in the form of ATM, internet banking, mobile banking and so on, but people are not

ready to accept these services. They have an ATM card and internet banking facilities and still they are very afraid to use these services like ATM. Instead, they are still motivated to use the traditional retail banking through ordinary checkbook and cash transaction.

It is a well-known fact that all the people and companies in Nepal are late adopter, regarding technological adoption and implementation. Most of the countries in Asia and Middle East also have faced the same kind of problem. Nepal has been a member of World Trade Organization (WTO) since 23 April 2004 (WTO, 2015), so all the services like banking, government and other should be strong enough to make international standard and maintain the customer Trust on it. To make the service better, the adoption of new technology and technology advancement is the only option for the bank also. As compared to developed countries like Europe, USA, people from Nepal are far beyond the access of new technology and infrastructure. People are late adopters in every aspects of technology and services.

As mentioned by Sukkar and Hasan (2005), the general problems faced by the developing countries are the same for Nepal. Which are as follows:

- Security and privacy are the main reason to accept the new technology, means that in the underdeveloped and developing country, many banks and financial institutions don't adopt the highest secure system and there infrastructure is not that enough to provide security and privacy.

- Lack of computer literacy and internet accessibility. Because of the low education literacy rate, training needed to use internet and computer and information technology infrastructure makes it difficult to adopt the new technology.

- Lack of government policies and regulation for the banking sector to provide different new and innovation banking services like internet banking.

- Broken and slow internet connection, means that there is no stable internet service available, and mostly the internet service is available to the cities areas only.

- Connection costs for customers and high costs of building and managing sites for the banks. Since there is no any mechanism to provide internet to the customer from the government side, people have to buy the internet from the private service providers so

it will cost very high. And on the other side, vendor for the service to the banks also very expensive.

- Specific cultural and religious issues that determine consumer behavior in the region
- Data and network security concerns in addition to privacy problems, which shake the confidence of customers
- Customers are afraid to use internet banking because they think that any mistake or error could mean a loss of money
- Lack of services and internet awareness, customer are still not confident with using ATM cards, Mobile banking or other online services.

1.4 Motivation of the Study

Internet banking is the new innovation in Nepalese Banking sector. Although some banks are trying to introduce internet banking, still this sector is not growing as expected. Internet banking service is very important for the bank in the 21st century to compete and cope with the international market. In the same way, Internet banking is widely studied in developed country but there only a few studies have been done in developing and underdeveloped countries like Nepal. So this is a new innovation for the banking sector in Nepal. As there have not been many studies in Nepal in the field of Internet Banking, I have been motivated to conduct a comprehensive research on this topic.

This research is aimed to contribute to some knowledge in the field of internet banking research. From the practical perspective this research can provide an outline for the bank managers to make some strategy, to make the customers aware for such services and how to use them, which in total can be used to improve the banking sector and enhance the quality of banking services. In addition, this study will open the door for future research on the mobile banking platform. Besides the internet banking, I will try to investigate the intention of customers: what kind of platform customers want to use mostly and how they want to use that service in this research. So many researches already have been done in different countries in different setting to understand the customer view point on mobile banking, and in case of developing countries this kind of model may be more suitable because of the easy access of mobile phone and service through the mobile phone.

1.5 Objective of the study

The main objective of this research is to identify and analyze the determining factors for the adoption of internet banking in the developing as well as underdeveloped countries. There are not so many articles published to cover the study and case of underdeveloped countries like Nepal. This research is totally based on the literature review of article and case-studies of developing countries. Throughout this research, the main focus is to analyze the article containing 'factors influencing adoption of internet banking in developing countries' specially countries from South Asia as well as the Middle East.

The objective of this study is to find the relationships between different factors and variables that affect the implementation of internet banking from the customer's point of view. As I stated earlier that this study is totally conducted from the customer point of view only, to know the views and perceptions of the customers on a particular service provided by the banking industry and how they perceive that service and why they are not so much motivated to use such kind of services. So the main objective is to analyze the customer perception while using that product and their reaction towards such services. This study is based on the theoretical framework Technology acceptance model developed by Davis (1985) for his Ph.D. which is the widely used model to test the technology acceptance. This research aims at finding the relationship between different factors on the basis of Technology Acceptance Model and some other factors related to internet banking. From Technology Acceptance model factors like Perceived Usefulness, Perceived Ease of Use, intention and addition to this some factors like Trust, perceived risk and their relation to the use of internet bank will be analyzed.

1.6 Research Question

This research is the outcome of the study and research on internet banking in Nepal. This research aims at addressing the usage and adoption of internet banking. This research will be based on the perception of the customers in the Nepalese banking system the researches that have been conducted in Nepal are aimed at finding out the number of customers using internet banking or banking services like ATM, mobile banking, internet banking. With the rapid development in technology and infrastructure in the communication sector in Nepal, now many people have mobile phone and communication accessibility.

With the new service and demand, the taste of customer may have changed, with the growing use of technology and communication devices the perception of internet banking and perception of internet might be changed. It would be better to study their intention and perception towards the use of internet banking and provide some recommendation which can add contribution to the existing knowledge on study of customer perception and their intention.

So the research question of this study is:

- **What are the important factors affecting adoption of internet banking in Nepal?**

1.7 Theoretical Model

With the technological advancement, research area in the field of consumer acceptance is growing. There are different theoretical models developed at different point of time and are in practice these days. However, the technology acceptance model developed by Davis, called Technology Acceptance model, is widely used. In the same way to address the online intention of the customer, new extension of TAM, called Trust and TAM was developed (Gefen et al. 2003). This model combines the use of factors from Technology Acceptance Model and uses Trust as a new variable factor to address the online shopping behavior. To make the study more comprehensive, the model called integration of TAM with Trust and perceived risk is used in this research.

1.8 Structure of the Study

The research report is organized into five different topics as follows:

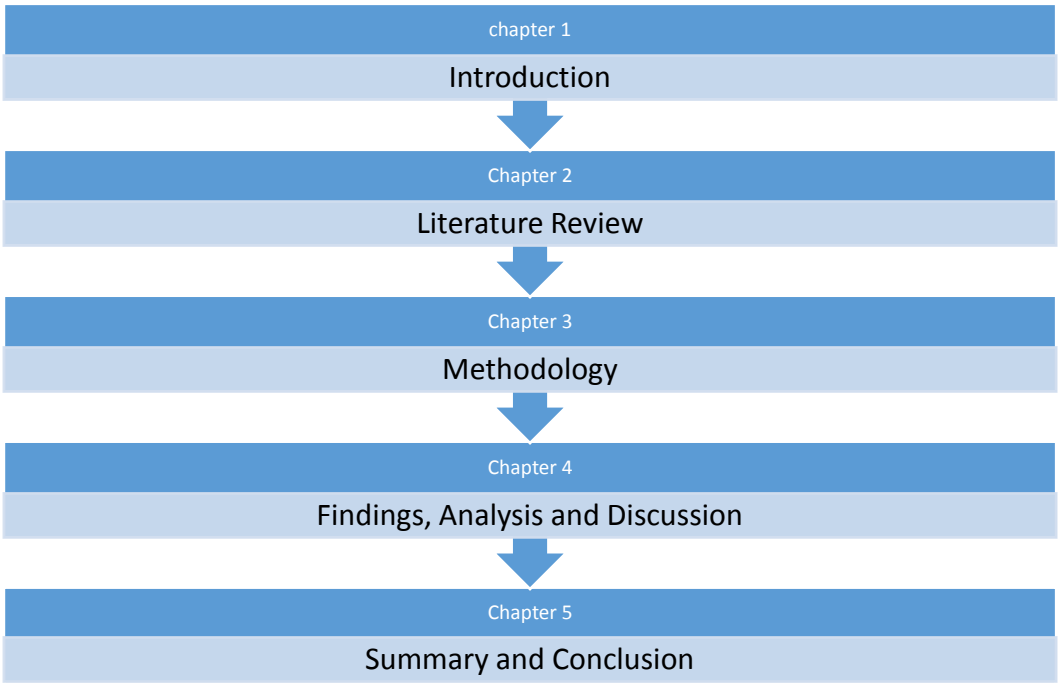


Figure 1. Structure of the Study Report

2 Literature Review

2.1 Electronic Banking

It is very important for the managers as well as the researchers to understand the factors which play important roles in technology adoption. For managers, it is important because it matters while formulating the strategies and implementing policy, and for the researchers as well. In the same way to make the company more efficient and cost effective, technology and its advancement play important roles. This report is based on the following the technology adoption framework, called Technology Acceptance Model (Davis Jr, 1986). On the basis of this model, there have been so many studies undertaken in the developed countries, and the Technology Acceptance Model is widely used for the technology adoption analyzing the customer's perception as it is comparably easy to use.

Britannica Defined electronic banking as:

> Electronic banking, use of computers and telecommunications to enable banking transactions to be done by telephone or computer rather than through human interaction. Its features include electronic funds transfer for retail purchases, automatic teller machines (ATMs), and automatic payroll deposits and bill payments. Some banks offer home banking, whereby a person with a personal computer can make transactions, either via a direct connection or by accessing a Web site. Electronic banking has vastly reduced the physical transfer of paper money and coinage from one place to another or even from one person to another (Editor, 2015).

From this definition, one can argue that electronic banking is the more sophisticated form of banking adding different value-added services to the customers so that customers can use different electronic devices like PC, laptop and other smart devices to do their banking transactions. We can note that the electronic banking is a platform which provides the users to access all their financial transactions just using web-based platform and internet. The term internet banking can be explained in different terms. In simple terms, electronic banking can mean the provision of information about the bank and its product via a page on World Wide Web (WWW) and through the use of computer, telephone or mobile phone (Daniel, 1999).

Daniel (1999) argues that an advance level of internet banking is the one which can be used to handle all online transactions. Electronic banking has three different modes of delivery, like telephone, PC and internet. This concept has been more clearly presented in the following table.

Delivery platforms for electronic banking

Type of service	Description
PC banking (private dial-up)	Proprietary software, distributed by the bank, is installed by the customer on their PC. They then access the bank via a modem linked directly to the bank
Internet banking	Customers can access their bank and account when they use the Internet
Managed network	The bank makes use of an online service provided by another party, such as AOL
TV-based	The use of satellite or cable to deliver account information to the TV screens of customers

Table 1. Delivery Platforms for electronic banking

From the above discussion we can conclude that internet banking is one form of electronic banking, or in other words, internet banking is one delivery channel of electronic banking. With the advancement of internet, many companies and business houses including banks are providing many web based applications as a new way of service to the customers to retain the customers and to provide better taste and service. In the same way, internet banking is one of a new product in terms of service to the customer. From the new service every organization as well as customer gains an advantage. Internet banking has emerged and is growing as one of the most profitable e-commerce application (Lee, 2009). Most of the bank worldwide have deployed internet banking system as a service minimizing the cost improving the customer services.

Electronic banking is the newest service delivery channel in many developed countries and it is growing with the advancement of technology and will have a significant market ahead in developing countries. (Claus), as the findings from his survey, concluded that banks use the internet as a key alternative delivery channel. Similarly, he argued that internet banking provides the traditional players in the banking and financial service sector a new opportunity to add low cost distribution channel for their numerous services. Besides, he argued that internet banking also creates a threat to the traditional banking services and their market share because it neutralizes so many of their competitive advantages of having a traditional branch

network. To retain the customers who want the new and innovative service and to sustain in the competitive world market, banks are compelled to adopt new self-service delivery channels.

2.2 Internet Banking in Nepal

Internet banking is one of the delivery channels of e-banking which helps customers to perform all their financial transactions electronically. With the establishment of Nepal Bank Limited in 1937, banking customers in Nepal had to wait for more than 65 years to use internet banking service in Nepal, which was around 2002. But still Internet banking is not so popular and fast growing in Nepal. Nepal Rastra Bank, the Central Bank of Nepal was established after 19 years since the establishment of the first commercial bank (Bank, 2013)[1]. With the change of government policies in the financial sector in 1980s, government focused on privatization and attracted foreign investment in the financial sector also. After such changes different new banking companies came into existence both from private and from joint venture sectors. As stated by the Nepal Rastra Bank report (Bank, 2013), Nabil bank Ltd. was the first joint venture bank in Nepal. By the end of mid-July 2013, in total 253 banks and non –bank financial institutions licensed by Nepal Rastra Bank were in operation. Out of them, 31 are "A" class commercial banks, 86 "B" class development banks, 59 "C" class finance companies, 31 "D" class micro-credit development banks, 15 saving and credit co-operatives and 31 NGOs.

[1]http://bfr.nrb.org.np/statistics/bank_fina_statistics/Banking_and_Financial_Statistics--No_59%20July%202013.pdf

Growth of Financial Institutions

Types of Financial Institutions	Mid - July												
	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Commercial Banks	3	5	10	13	17	18	20	25	26	27	31	32	31
Development Banks	2	2	3	7	26	28	38	58	63	79	87	88	86
Finance Companies			21	45	60	70	74	78	77	79	79	69	59
Micro-finance Development Banks			4	7	11	11	12	12	15	18	21	24	31
Saving & Credit Co-operatives Limited Banking Activities)			6	19	20	19	17	16	16	15	16	16	15
NGOs (Financial Intermediaries)				7	47	47	47	46	45	45	38	36	31
Total	**5**	**7**	**44**	**98**	**181**	**193**	**208**	**235**	**242**	**263**	**272**	**265**	**253**

Table 2. Financial Institutions in Nepal

There are very few banks in Nepal which integrate the internet banking service as mentioned by Mishra (Seng n.d.).

- Credit Cards (introduced by Nabil Bank in 1990)
- Debit Cards (all commercial banks)
- Automated teller machines (introduced by Himalayan Bank Ltd. in 1995)
- Electronic fund transfer at points of sale (EFTPOS)
- Internet banking (introduced by Kumari Bank Ltd. in 2002)
- Mobile banking; (introduced by Laxmi Bank Ltd. in 2004).

Internet banking in Nepal is in its infancy. Through Internet banking:

- Balance enquiry can be made.
- Amount of one account can be transferred to another in the same bank.
- Payment of utilities like electricity and telephone can be made by using the Internet.
- Payment of loans and applications for import letter of credit (L/C) can be made if there is sufficient balance available in the customer's current or saving account in the same bank.

In addition to this reference, a recent research conducted by Nepal Bankers Association[2], Nepal, in July 2013 Khatri and Upadhyay-Dhungel (2013), conclude that after ten years of

[2] http://nepalbankers.com/attachments/182_Khatri%20and%20Dhungel.pdf

introduction of internet banking also, most of the people are still relying on traditional banking. This research somehow addresses the problem which I want to address, but the focus and objective of this research and my objective is quite difference. On the basis of their research, there are around 200,000 internet users in Nepal and 50% of them are inside the main city, Kathmandu Valley, and only 1.5% user are using the internet bank. Which is very low acceptance.

According to the recent report from Nepal Rastra Bank, till Jan 2015 (Nepal Rastra Bank, 2015)[3], there are 30 'A' class Commercial banks, 81 'B' class Development banks, 52 'C' class Finance companies, 36 'D' class Microfinance Development banks, 15 saving and Credit cooperative banks with limited banking facilities. The main responsibility of all these kind of banks and financial services is to provide the financial services to the customer. There is not any research in the banking field till date so there is no such data available that how many people have bank accounts in Nepal till date, and which banks are providing specialized services in Nepal.

Through visiting official website of the particular banks is the only option to know what kind of services they are offering to the customers. The kinds of services provided by commercial banks of Nepal are as follows (as Feb 2015):

S. NO.	Bank	Services
1	Nepal Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
2	Rastriya Banijya Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
3	Agriculture Development Bank Ltd.	NA
4	Nabil Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking, Credit Card, Mobile pay
5	Nepal Investment Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking, Credit Card
6	Standard Chartered Bank Nepal Ltd.	ATM/ David Card, SMS Banking, Internet Banking, Credit Card
7	Himalayan Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking, Credit Card
8	Nepal SBI Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
9	Nepal Bangladesh Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
10	Everest Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
11	Bank of Kathmandu Ltd.	ATM/ David Card, SMS Banking, Internet Banking

[3] http://bfr.nrb.org.np/pdffiles/BFI_List_English_Jan_2015.pdf

12	Nepal Credit and Commerce Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
13	Lumbini Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
14	NIC Asia Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
15	Machhapuchhre Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
16	Kumari Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
17	Laxmi Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking, Credit Card
18	Siddhartha Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
19	Global IME bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking, Credit Card
20	Citizens Bank International Ltd.	ATM/ David Card, SMS Banking, Internet Banking
21	Prime Commercial Bank Ltd	ATM/ David Card, SMS Banking, Internet Banking
22	Sunrise Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
23	DCBL Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
24	NMB Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
25	Prabhu Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
26	Janata Bank Nepal Ltd.	ATM/ David Card, SMS Banking, Internet Banking
27	Mega Bank Nepal Ltd.	ATM/ David Card, SMS Banking, Internet Banking
28	Civil Bank Litd.	ATM/ David Card, SMS Banking, Internet Banking
29	Century Commercial Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking
30	Sanima Bank Ltd.	ATM/ David Card, SMS Banking, Internet Banking

Table 3. List of Commercial Banks in Nepal, Source: official website of the respective bank accessed on 2nd Feb 2015

Nowadays, almost all commercial banks introduce the internet banking service, but still the customers are not willing to accept the services. Most of the banks have internet banking service with only username and password, and there is nothing other secure mechanism between this, like security code or something, which may be the reason people are hesitating to use internet banking. According to the Nepal Telecom Authority report (Authority, 2014), only 35% people have internet accessibility in Nepal.

2.3 Benefits of Internet banking

Internet banking offers a different kind of benefits to the customers as well as the banks. The main benefits to the banks are cost saving, reaching new segments directly, and providing the value additional better services to the customers and providing the new taste of services to the customers in the world competitive market. Schierholz and Laukkanen (2007) present that the

development of electronic banking services via multiple electronic channels has made it possible to provide new kinds of added value for customers who are more demanding and want new services and value addition.

Sheshunoff (2000) argues that to create the exit barrier to the customer most of the banks are motivated to implement internet banking and other kind of more innovative services. He further explains that if the customers get full satisfied service from one bank, the chance of customers switching is very low, because one satisfied customer does not want to take the risk to waste the time and money to go to another service provider. So internet banking service provides the competitive advantage to the bank.

Schierholz and Laukkanen (2007) explain the benefits of internet banking states that internet banking is the newest form of a delivery channel and is the best application for business to consumer business. Similarly from the customer's point of view, internet banking provides the 24-hour banking services, time and cost saving and new integration with the technology advancement. As compared with the traditional banking, internet banking also provides better services in low cost and free environment (Karjaluoto et al., 2002a). Thus, internet banking offers many benefits to both service providers and their customers.

2.4 International studies on adoption of Internet banking

The research in the field of internet banking and Internet Banking Adoption is growing significantly nowadays and there will be more researches in this field in Asia in coming days (Hanafizadeh et al., 2014). From the banking manager's perspective also this type of researches or studies are more beneficial, which make them to prepare for the future market and to formulate the strategies too. If banks are able to implement internet banking in full phase, then it makes them more cost effective and efficient to provide better services to the customers. So, to be familiar with the new changing environment with technological advancement and become more competitive in the world market it is necessary to adopt new technology and manage change in every banking sector and business houses. Thus, there are so many discussions and studies that already have been done in this topic and areas especially in the developed and developing country. These are the literatures which are published in the related field as the adoption of internet banking services. Most of the articles are based on the

theoretical framework of Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) and some are initially based on Theory of Reasoned Action (TRA). Generally, all of these theories are used to predict the consumer intension regarding the new technology Yousafzai et al. (2010), in their article, argue that among the TRA, TPB and TAM model, TAM is superior than any other model and this model is more able to highlight the importance of Trust in understanding the Internet Banking Adoption behavior. So now, some of the previous study and research in the Internet Banking Adoption field and focusing on the developing country scenario is analyzed based on the model and factors which they found to be more important to restrict the change and adoption of Internet Banking.

In the same way to understand the better suitable distribution channel for the retail banking sector, Mols (1998a) conducted a survey in Denmark to understand the behavioral consequences of PC Banking with the PC banking users and non-users, and concluded that the customers captured by offering PC banking are very attractive to the banks because they are more satisfied with the banks and they are more willing to recommend their bank to others. He further argues that PC banking (internet banking) customers are less price-sensitive and more positive to recommend and provide feedback too. Mols et al. (1999) take the survey in Denmark and outlines the adaptation process in the distribution channel structure of the retail banking sector as a consequence of the introduction of electronic channels, such as telephone banking, PC banking and Internet banking. Based on responses from 42 retail banks in Denmark, their distribution channel strategies are described and their relation to selected marketing mix elements is examined. Most Danish retail banks attach decisive importance to offering a customer-friendly PC bank service, whereas fewer of them attach the same importance to telephone, Internet and branch banking. A multiple channel strategy combining several channels is the most popular. I totally agree with the research finding because this research was conducted in 1999 when there was a need to understand the better distribution channel in banking sector. Nowadays, most of the developed countries have already equipped with the advance technology and online service banking industry, but in case of developing country like Nepal, this research is still more relevant. Though most of the banking offer internet or SMS banking, still people prefer traditional banking, which means multi-channel distribution strategy. Furthermore to continue his research in the field of bank marketing and internet banking, Mols (1998b) conducted his research to find the banks strategic distribution channel decision. And the results show that internet banking is the new distribution channel and it is better than the traditional banking system because it lowers the

waiting time and offer more continence. And which proved that internet banking is the new and innovative distribution channel and which is far better than the traditional banking system.

Hanafizadeh et al. (2014) reviewed 165 research articles published on the Internet Banking Adoption between 1999 and 2012. They include the paper containing keyword adoption of internet banking and acceptance to search and find the articles. The main focus of their study was to understand customer's perspective. So, they concentrate on bank customers and their attitudes, motives, expectations and beliefs regarding adoption. Their study shows that familial income and education levels significantly influence IB adoption among older customers and that the perceived difficulty of using computers combined with a lack of personalized service is the most important barrier to IB adoption among these customers. They conclude their research providing the research gap and trend that the research in the internet banking adoption field is growing. They argue that the majority of research has been conducted in South East Asia and there is a good possibility to continue in future.

Similarly, Oly Ndubisi and Sinti (2006) also focused on consumer attitude on adoption of Internet banking in Malaysia. The research is based on the Theory of Planned Behavior (TPB), develop by (Ajzen, 1991), and which was one of the theoretical model to link the belief, attitude and behavior. They presented the factors as importance to the banking need, compatibility, complexity, trainability, Risk, Utilitarian orientation and Hedonic orientation. Their results of the study presented that the attitudinal factors play a significant role in internet banking adoption. Moreover, utilitarian orientation of the website rather than hedonic orientation has the significant influence on adoption.

In the same way to analyze the internet banking adoption strategy in Thailand, Jaruwachirathanakul and Fink (2005) conducted a quantitative research based on Decomposed Planned Behavior to identify the factors that encourage customers to adopt the internet banking services in Thailand and at the same time use the study's finding to formulate the policy by bank to maximize the rate of adoption. This study is also based on the same theory of attitude and belief as before. Their finding reveals that The attitudinal factors that appear to encourage the adoption of internet banking in Thailand are "Features of the web site" and "Perceived Usefulness", while the most significant determinant to adoption is a perceived behavioral control, namely "External environment". The significant moderating

factors are gender, educational level, income, internet experience and internet banking experience, but not age.

This study aims to analyze the factors which affect the implementation of internet banking, especially taking the case from South East Asia and from Developing countries. To continue this article review, there was a new and interesting research in Taiwan to identify the Determinants of User Acceptance of Internet banking by (Wang et al., 2003b). This study was totally based on the Technology Acceptance Model (TAM). The main factors they perceived while conducting their research were Trust and Perceived Credibility, Perceived Usefulness, Ease of Use, computer Self-Efficacy and intention. And their finding presents that computer Self-Efficacy and Perceived Ease of Use make the user more attractive. From their analysis we can conclude that the TAM model is mostly used to predict the behavioral intension of the users to use the system or technology, and the factors such as Perceived Usefulness and easy to use and individual computer Self-Efficacy also play an important role to accept the change and for the adoption of new technology/System. In the article they argue in their own words about their findings as:

> The findings of this study have implications for developing usable Internet banking systems. Considering 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 (Wang et al., 2003b, p.514-515).

In the same way Shih and Fang (2004), investigated the consumer behavior to study internet banking in Taiwan using the theoretical model Theory of Planned behavior (TPB) and theory of reasoned action (TRA). From their quantitative study, they found different factors like behavior intension, Attitude, perceived advantage, relative advantage, compatibility, complexity and efficacy and so on. They also argue that there is better future in internet banking and it will be broadly accepted and for that banking and other marketplace should think how to educate their potential customers and how to promote internet banking using

innovative characteristics. So this research also focuses on the behavioral intension of the customer and to adopt any changes first they should make aware their potential customers with the benefit and ease of use of that system or technology.

Furthermore, Liao et al. (1999) investigate the research on adoption of virtual baking from the customers point of view. Their research was based on the Theory of planned behavior (TPB) and innovation diffusion theory to identify the factors that affect the adoption of virtual banking specially internet banking. The findings of their study were Attitude, ease of use, compatibility, perceived risks, subjective norms, perceived behavioral control and learning and so on. And the finding present that TPB was only partially applicable in predicting the adoption intention of virtual banking in the research setting. The First hypothesis stated that attitude towards virtual banking was dependent on relative advantage, compatibility, ease of use, result demonstrability and perceived risk. The second hypothesis claimed that subjective norms about virtual banking were dependent on image, visibility and critical mass. The third hypothesis was that perceived behavioral control about virtual banking was dependent on voluntariness, trialability, support and organizational learning. The last hypothesis stated that intention to use virtual banking was determined by attitude, subjective norms and perceived behavioral control.

To identify the customer behavior Tan and Teo (2000), conduct the research based on the Theory of Planned Behavior (TPB) and the Diffusion of innovations Theory. On the basis of questionnaire and analysis they identified different factors like Relative advantage, value compatibility, banking need with internet experiences, risk, Self-Efficacy, technology support and social needs. And their results reveal that attitudinal and perceived behavioral control factors, rather than social influence, play a significant role in influencing the intention to adopt Internet banking. In particular, perceptions of relative advantage, compatibility, trialability, and risk toward using the Internet were found to influence intentions to adopt Internet banking services. In addition, confidence in using such services as well as perception of government support for electronic commerce was also found to influence the consumers' intentions.

All the studies and researches discussed so far are based on the Internet Banking adoption, and all researchers focused their study to understand the consumer behavior. As compared to Nepal, the research presented here are from developing countries but there is not any such international journal published addressing the issue of Nepalese banking customer segments.

These articles were chosen to get the reference and understand the main important factors that affect the adoption of internet banking in particular country.

2.5 New Technology Adoption

The world is changing so fast because of the technological advancement. Day by day, new technology, tools and technological services are introduced in the market, and companies are trying to produce new and better technology day by day. In the same way, business houses and service organizations like banks are trying to adopt new technology to make their business and service smooth and as well as to lower the cost. But technology adoption is not that easy; most of the people don't want to change what they are using today; they don't want to take other shift. There are so many factors that play the role from intention to social and cultural factors, different demographic factors and so on.

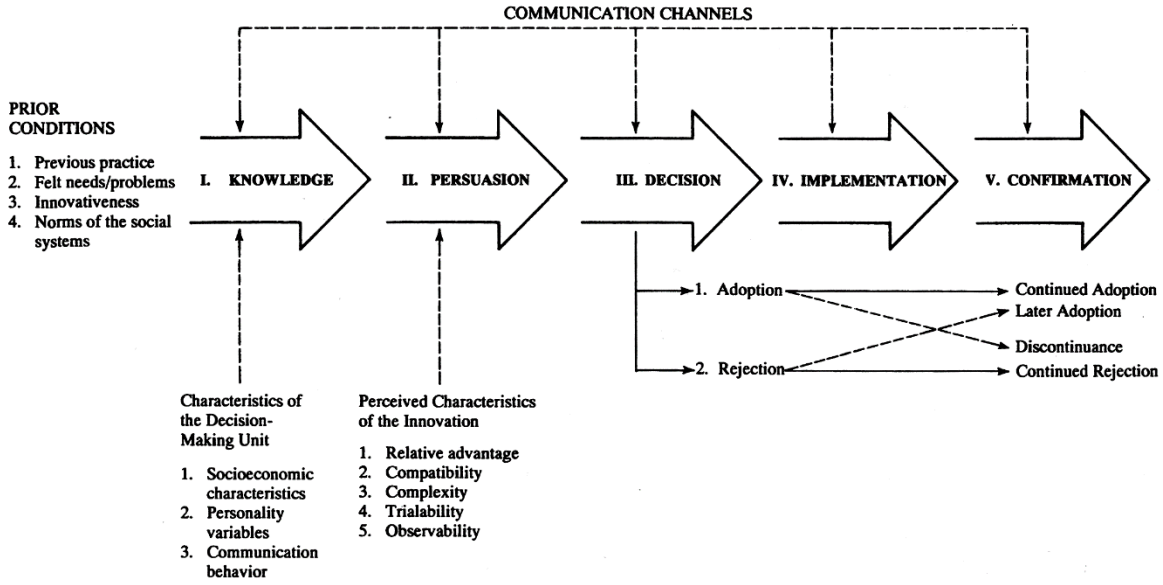
Srite and Karahanna (2006) suggest that social norms are stronger determinants of intended behavior for individuals who espouse feminine and high uncertainty avoidance of cultural values, and further explain that the cultural differences between different countries impact the effectiveness and efficiency of information technology adoption.

To address the behavioral aspects, different socio-psychological theories were developed, and in the same way, from another side of technology innovation, a new theory was also developed called Innovation Diffusion Theory, to address the field of innovation technology and its implementation. Rogers (1983) developed the theory called Innovation Diffusion to explain the process of innovation adoption. According to the Rogers (1983, p. 5) in his book, defined the technology adoption as a diffusion of innovation and "diffusion is the process by which an innovation is communicated through certain channels over time among the participants in a social system". And he further explains that four different elements play the main role while spreading new ideas, and these are: the innovation itself, communication channels, time, and a social system. The innovation itself is defined as "Any idea, practice, or object that is perceived as new by an individual or other unit of adoption could be considered an innovation available for study"(Rogers, 1983, p. 11). In the same way, the second element of diffusion of innovation process is communication channels. Rogers (1983, p. 17) defined communication as "a process in which participants create and share information with one another in order to reach a mutual understanding". The social system is the last element of

diffusion theory which is defined as "a set of interrelated units engaged in joint problem-solving to accomplish a common goal"(Rogers, 1983, p. 24).

The innovation adoption process proposed by Rogers should pass five different steps. In other words, the diffusion occurs through five-step decision-making process through a series of communication channels over a period of time among the members of a similar social system. The innovation-decision process involves five steps:

1. Knowledge
2. Persuasion
3. Decision
4. Implementation stage
5. Confirmation stage



The *innovation-decision process* is the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision.

Figure 2. The Innovation Decision Process Source: Rogers (1983, p. 165) Diffusion of Innovation

1. **Knowledge**: The individual is first exposed to an innovation, but lacks information about the innovation. During this stage, the individual has not yet been inspired to find out more information about the innovation.

2. **Persuasion**: The individual is interested in the innovation and actively seeks related information/details.

3. **Decision**: The individual takes the concept of the change and weighs the advantages/disadvantages of using the innovation and decides whether to adopt or reject the innovation. Due to the individualistic nature of this stage, Rogers notes that it is the most difficult stage on which to acquire empirical evidence.

4. **Implementation Stage**: The individual employs the innovation to a varying degree depending on the situation. During this stage, the individual also determines the usefulness of the innovation and may search for further information about it.

5. **Confirmation Stage**: The individual finalizes his/her decision to continue using the innovation. This stage is both intrapersonal (may cause cognitive dissonance) and interpersonal confirmation the group has made the right decision.

This process is very much related and relevance to all the innovation services. In Nepalese perspective also, internet banking is mostly the new and innovative service provided by the banking industries. And most of the users of internet banking are more educated, have a relatively high social standard, and think that they can benefit from the internet banking. So, in Nepalese perspective, it is necessary that banks and financial institutions should conduct different awareness-related programs to make the people aware of the internet banking, procedure and its benefits. Only then customers will go through these five steps to adopt the new technology and services.

There are different theories developed in the field of social psychology to predict and explain human behavior intention of information technology acceptance. Some of the well-known models which are used extensively to predict and explain the human behavior are Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM). Actually these models are used to predict the consumer attitude towards the acceptance of new technology either acceptance or rejection. As Rogers (1983) explains the process of new technology adoption and states the five different steps of adoption, these model can fit in the Decision step. So from my point of view, consumers can decide whether to accept or reject new system or technology only after the use of that system. So this process is not the model like TRA, TPB and so on; it is just the process of new technology adoption. And the models are the tools which we can use in third steps to know the customer attitude towards the system.

To explain further, Rogers (1983) discusses different variables that determine the rate of adoption of innovations. According to Rogers (1983), the rate of adoption is "the relative speed with which an innovation is adopted by members of a social system" (P.36). As I discussed earlier that the predictive models are tools which can be used in step 3 (Decision), and these variables are the main inputs for that model. Besides these variables, different researchers define their own variables for their models, as (Ajzen and Fishbein, 1980) developed the model called Theory of Reasoned Action and defines their own variables for that model, (Ajzen, 1985) extended TRA and developed the Theory of Planned Behavior and defined their own variables. Davis Jr (1986) suggested the Technology Acceptance Model and defined its own variable as Rogers (1983) defined its own variable for Diffusion of Innovation Theory. In sum, these all variables are the sources of input for the specific model and the users perceive the answer of these variables only after using that product. So, these variables work in the second step of technology adoption process. Although the meanings of almost all variables are the same/similar, the name of the variable is different according to the model.

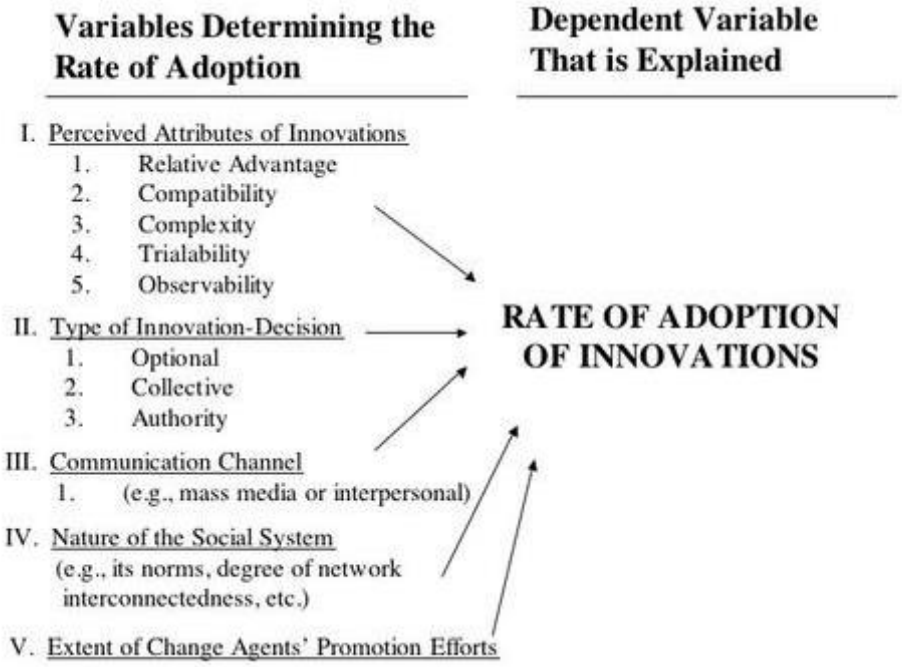


Figure 3. Variables determining the rate of innovation Source Rogers (1983, p. 233)

According to Rogers (1983), the perceived attributes of innovation are the core variables that affect the rate of innovation adoption. Relative advantage is defined as the degree to which an innovation is perceived as being better than the idea it supersedes (Rogers 1983). In the same way, compatibility is defined as "the degree to which an innovation is perceived as consistent

with the existing values, past experiences, and needs of potential adopters" (P.223). Similarly Rogers (1983) define complexity as "the degree to which an innovation is perceived as relatively difficult to understand and use" (P.230). Defining trialability, he states that "is the degree to which an innovation may be experimented with on a limited basis" (P.231). Observability is defined "the degree to which the results of an innovation are visible to others" (Rogers 1983, P.232).

To address the innovation adoption Moore and Benbasat (1991) developed an instrument purposefully designed to measure the various perceptions that an individual may have of adopting an information technology (IT) innovation. They further state that this instrument is intended to be a tool for the study of the initial adoption and eventual diffusion of IT innovations within organizations (Moore and Benbasat, 1991). They further added two constructs in addition to Rogers' (1983) five construct to measure the potential adopters' perceptions of the technology, and these two constructs are Image and Voluntariness of use, where image is defined as the extent to which an innovation is perceived to improve the status of an individual in a given social system, and Voluntariness of use is defined as the extent to which the user of an innovation is perceived as a free will act. And the results reveal that positive perception of the status (image) and freedom to the individual leads to the higher adoption of technology.

2.6 Theoretical Framework

2.6.1 Theories from Socio-psychology

Every organization is investing in information technology with the expectation that they could improve their business performance and provide better services. But if the customers are not ready to accept the service, it will not be of any significance. So, to sort out the technical barrier and to understand why people are unwilling to accept new technology, many researchers and practitioners have developed different theories. Most of the theories were developed to understand the customer intension and behavior towards using the new technology.

According to Fishbein and Ajzen (1975), Theory of Reasoned Action (TRA) is one of the widely used and validated intention models to predict customer behavior in a wide variety of domain. Because of the limitation of volitional control, Ajzen (1985) extended the theory of

Reasoned Action to theory of Planned Behavior by adding one more construct called Perceived Behavioral Control, which predicts the behavioral intention and behavior.

Theory of Reasoned Action (TRA)

TRA was Originated from social psychology and widely studied model used to explain human behavior (Ajzen and Fishbein, 1980, Fishbein and Ajzen, 1975). According to TRA, a person's performance of a specified behavior is determined by his or her behavioral intention (BI) to perform the behavior, and BI is jointly determined by person's attitude (A) and Subjective Norms (SN) (Davis et al., 1989).

$$BI = A + SN$$

Attitude (A) is defined as the individual's positive or negative feelings about performing a behavior. It is determined through an assessment of one's beliefs regarding the consequences arising from a behavior and an evaluation of the desirability of these consequences. Similarly, the Subjective Norms (SN) refers to "the person's perception that most people who are important to him think he should or should not perform the behavior in question" (Fishbein and Ajzen, 1975, p. 302).

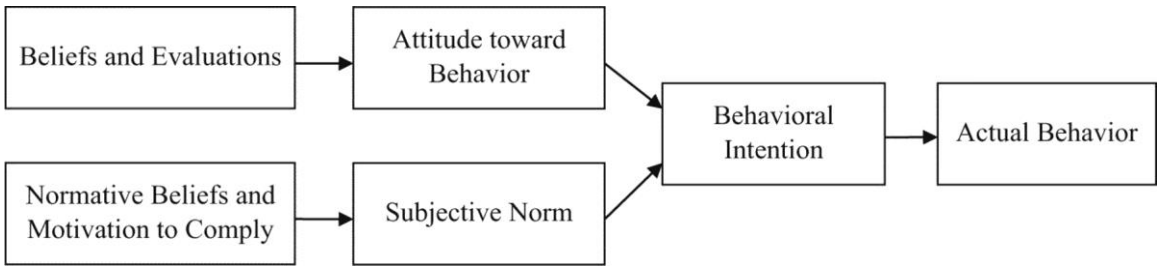


Figure 4. Theory of Reasoned Action, Source Fishbein M., Ajzen I. (1975)

According to the TRA, a person's attitude towards behavior is determined by his or her salient beliefs and evaluation of the consequences, where beliefs are the individual's subjective probability and evaluation terms refers to an empirical evaluation responses to consequences (Fishbein and Ajzen, 1975). In the same way, TRA explains that an "individual's Subjective Norm (SN) is determined by a multiplicative function of his or her normative belief that is perceived expectation of specific referent individuals or groups and his or her motivation to comply with these expectations" (Fishbein and Ajzen, 1975, p. 302). In sum, TRA is a general model that does not specify the beliefs that are operative for a

particular behavior. Researchers using TRA must first identify the beliefs that are salient for subjects regarding the behavior under investigation.

A particular helpful aspects of TRA from an IS perspective is its assertion that any other factors that influence behavior do so only indirectly by influencing by Attitude, Subjective Norms, or their relative weights. Thus, TRA has been successfully applied to a large number of situations to predict the performance of the human behavior. For example, user acceptance of computer technology (Davis et al., 1989), predicting unethical behavior (Chang, 1998), TRA applied to coupon usage Shimp and Kavas (1984), to predicted goal-directed behavior (Ajzen and Madden, 1986) for understanding and changing AIDS-related behavior (Fishbein and Middlestadt, 1989) to understand Consumer concern, knowledge, belief, and attitude toward renewable energy (Bang et al., 2000) and predicting and understanding mothers' infant-feeding intentions and behavior (Manstead et al., 1983) and so on.

Theory of Planned Behavior (TPB)

Ajzen (1985) extend the TRA by adding one construct called Perceived Behavioral Control to TPB. According to the Theory of Planned Behavior (TPB), as an extension of the theory of reasoned action (Ajzen and Fishbein, 1980, Fishbein and Ajzen, 1975) made to overcome the limitation in dealing with behavior over which people have incomplete volitional control (Ajzen, 1991). As in the Theory of Reasoned Action, the central factor in Theory of planned behavior is also individual's intension to perform a given behavior. The relation between intention and behavior shows that the stronger the intention, the more likely its performance should be, that is to say, the behavior is led by the intention of individuals. And in sum, the TPB model shows that the behavior of a person is determined by three predictors: attitude towards the specific behavior, the subjective norms, and the perceived behavior control. The perceived behavior control is defined as:

> Perceived behavioral control refers to People's perceptions of their ability to perform a given behavior. Drawing an analogy to the expectancy- value model of attitude, it is assumed that perceived behavioral control is determined by the total set of accessible control beliefs, i.e., beliefs about the presence of factors that may facilitate or impede the performance of the behavior. Specifically, the strength of each control belief (c) is weighted by the perceived power (p) of the control factor, and the products are aggregated. To the extent that it is an accurate reflection of actual behavioral control,

perceived behavioral control can, together with intention, be used to predict behavior[4] (Ajzen, 2006).

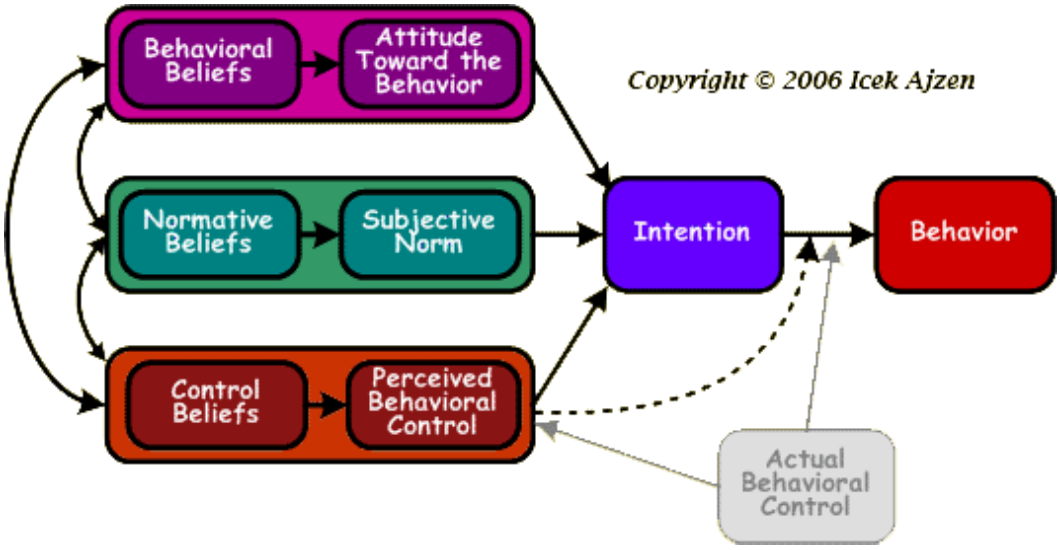


Figure 5. Theory of Planned Behavior Source: http://people.umass.edu/aizen/images/tpb.png; Accessed on 4th Feb 2015

The theory of planned behavior has been successfully applied to various situations in predicting the performance of behavior and intentions, such as prediction of goal-directed behavior (Ajzen and Madden, 1986), to predict user intention (Mathieson, 1991), Predicting dishonest actions (Beck and Ajzen, 1991), understanding and predicting electronic commerce adoption (Pavlou and Fygenson, 2006), predicting unethical behavior (Chang, 1998), predicting online grocery buying intention (Hansen et al., 2004), predicting the habit of online purchasing (George, 2004) and so on, and all of them found that Theory of Planned Behavior provides a better predictive power than Theory of Reasoned Action.

Decomposed Theory of Planned Behavior

On the basis of Theory of Planned Behavior (TPB) by Ajzen (1985) and Innovation Diffusion Theory (IDT) by Rogers (1983), Taylor and Todd (1995) proposed a model called Decomposed Theory of Planned Behavior (DTPB). As in the Theory of Planned Behavior, the main attributes or construct of DTPB model are Attitude, Subjective Norms and Perceived behavior control. According to Taylor and Todd (1995), this model is the alternative version of TPB with decomposed belief structure. In this model, attitudinal, normative and control beliefs are decomposed into multi-dimensional belief construct.

[4] http://people.umass.edu/aizen/pbc.html

Taylor and Todd (1995) further specified that by decomposing beliefs, those relationships should become clearer and more readily understood. According to DTPB, the attitudinal beliefs are taken from the Rogers' (1983) diffusion of innovation and the three salient characteristics of an innovation that influence adoption are relative advantage, complexity and compatibility (Rogers, 1983). Similarly, control beliefs are decomposed into two constructs: one Efficacy and the other Facilitating Condition (Taylor and Todd, 1995). Taylor and Todd also specified that the first dimension, Self- Efficacy, is related to perceived ability, and with respect to IT usage, the higher Self-Efficacy will lead to higher level of behavioral intention. The second factor Facilitating Condition construct provides two dimensions for control belief: one related to the resource factors like time and money and the other related to technology compatibility issue(Taylor and Todd, 1995).

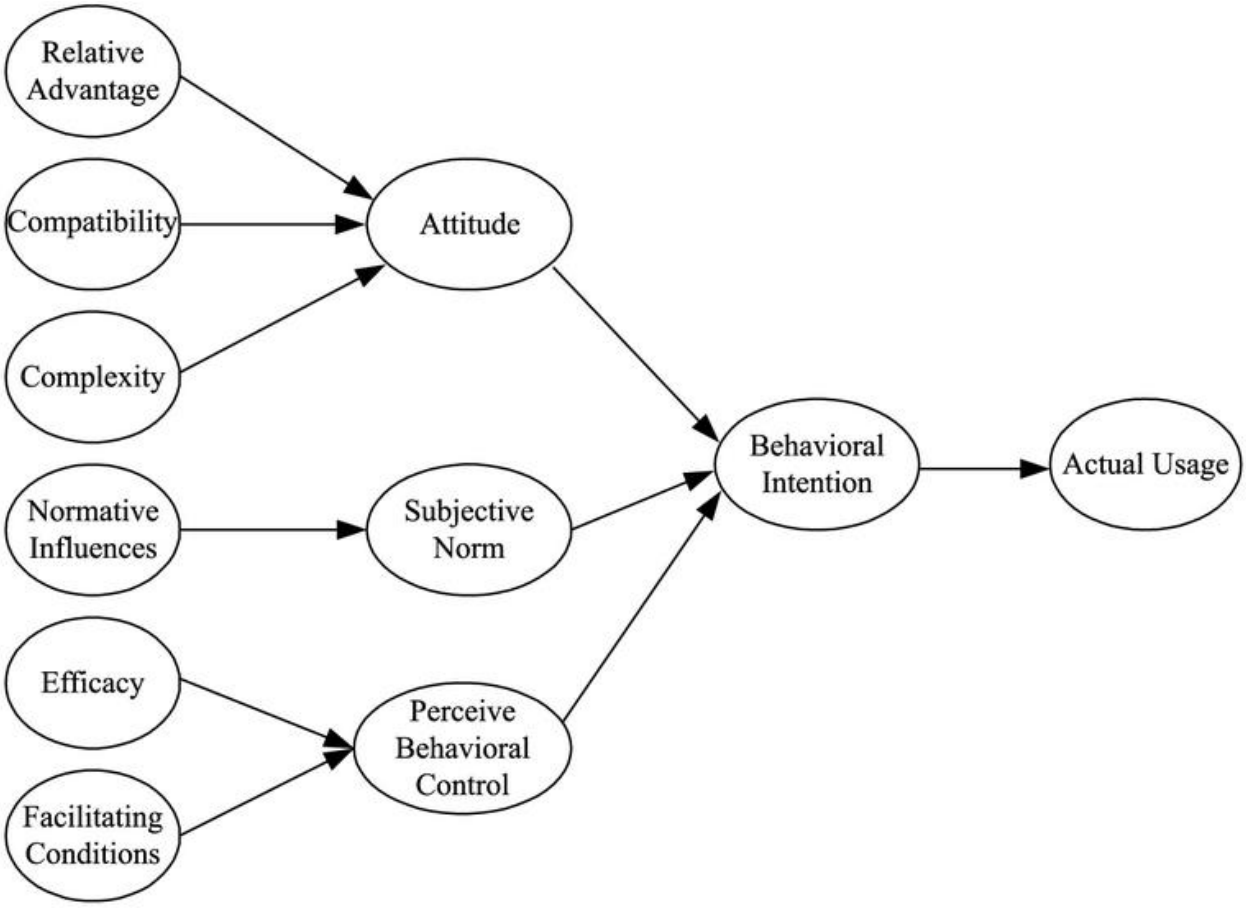


Figure 6. Decomposed Theory of Planned Behavior; Source: Shih, Y. Y., & Fang, K. (2004)

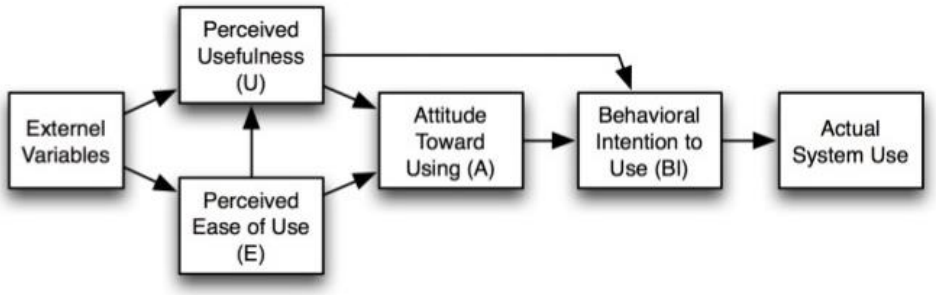
There are so many situations in predicting of behavior and intention where the Decomposed theory of Planned Behavior has been successfully applied, such as to study Internet banking in Taiwan (Shih and Fang, 2004), Factors influencing e-learning adoption intention (Ndubisi,

2004), study internet banking adoption in Jordan (Al-Majali and Nik Mat, 2010), study of internet banking adoption in Malaysia (Nor, 2005), predicting consumer intentions to shop online (Lin, 2008), and all of them found it having the better prediction power as compared to previous model.

Technology Acceptance Model (TAM)

Every customer wants new products and services which are most valuable to them. So the value to the customer is the key to every business houses. Like any other business, the banking industry is also one of the growing businesses, and technology is the key to success for the business houses. It is very difficult for every customer to accept the change either in terms of information technology or others, so to implement every technology successfully first it should be reviewed from the customers' point of view considering how much value the customers can get from that product or service. So the field of user acceptance is growing field of research for over two decades. Many models have been proposed to explain and predict the use of the system in the field of information technology, and the Technology Acceptance Model is the only one such popular model which captured the most attention of Information System Community (Chuttur, 2009).

To address the user acceptance of a technology implementation, Davis originally developed the Technology Acceptance Model for his Doctoral Thesis at MIT Sloan School of Management(Davis Jr, 1986). The final version of TAM models is illustrated as:



Source: Davis, F. D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly* **13(3)**: 319–340

Figure 7. Technology Acceptance Model

The Technology Acceptance Model is developed on the basis of the framework of Theory of Reasoned Action by Fishbein and Ajzen (1975) and other related and extended studies. And Davis further extended his conceptual model of TRA to propose the Technology Acceptance Model. According to his proposal, Perceived Ease of Use, Perceived Usefulness and Attitude towards using are the three main motivational factors which motivate the users to use the system (Davis, 1985). According to his hypothesis, attitude towards the system is the main determinant of whether user can use or reject the system. And the attitude of the user is influenced by Perceived Ease of Use and Perceived Usefulness of that system. Davis (1985) formally defined the TAM along with Perceived Usefulness and ease of use as follows:

The Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably:

Perceived Usefulness (PU) - the degree to which a person believes that using a particular system would enhance his or her job performance.

Perceived ease-of-use (PEOU) - the degree to which a person believes that using a particular system would be free from effort.

TAM theorizes a relationship between Perceived Usefulness and Perceived Ease of Use. Initially this model was used to predict the user acceptance in information system field such as emails, word processing and so on, and continuously there is a growing use of this model in the field of information technology. With more than 700 citations, this model is widely accepted and used worldwide to study and implement many ways. Chuttur (2009), in his paper, Argues that there are different countries participating to implement this model to test the customer acceptance for many information technology applications. There are different countries like the USA, the UK, Australia, Canada, China, Thailand, Finland, Singapore, Nigeria, France, India and so on, where the application like Email, word processor, Spreadsheet to Database, Expert System, Internet Banking Adoption use the Technology Acceptance model to test the customer Acceptance.

In the same way, so many researches have been done in the internet banking adoption in South Asian countries with this model. So for me and for my research also this model is the most suitable one. The recent meta-analysis research conducted by Yousafzai et al. (2007) on

the 145 research articles published on TAM, shows that there is a growing implication and research in the field of Information technology adoption and Technology acceptance Model. Till date, there are so many cases where technology acceptance model has been successfully applied, such as predicting user intention (Mathieson, 1991), to study intention of using Information technology (Legris et al., 2003), to understand Consumer acceptance of electronic commerce (Pavlou, 2003), predicting the use of web-based information systems (Mun and Hwang, 2003), internet banking (Lai and Li, 2005), user acceptance of internet banking (Wang et al., 2003a), explaining internet banking behavior (Yousafzai et al., 2010), internet banking acceptance (Chau and Lai, 2003, Nui Polatoglu and Ekin, 2001), internet banking acceptance (Sukkar and Hasan, 2005, Cheng et al., 2006) with all positive results.

Extension of Technology Acceptance Model (TAM 2)

Venkatesh and Davis (2000), to address the influences and determinants of Perceived Usefulness, added the subjective norm and other social influence process and cognitive instrumental process construct to TAM and named it as TAM 2. From model 2, they hypothesize that there will have a positive and direct effect on Perceived Usefulness.

In addition, Venkatesh and Davis (2000) developed and tested a TAM2 model by including a number of determinants to Perceived Usefulness into the new model. The new model explains the Perceived Usefulness and usage intentions in terms of social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and Perceived Ease of Use). For the research purpose Longitudinal data were collected regarding four different systems at four organizations, and at three points in time at each organization: pre-implementation, one month post-implementation, and three months post-implementation. And the result reveals that Both social influence processes and cognitive instrumental processes significantly influence the user acceptance (Venkatesh and Davis, 2000).

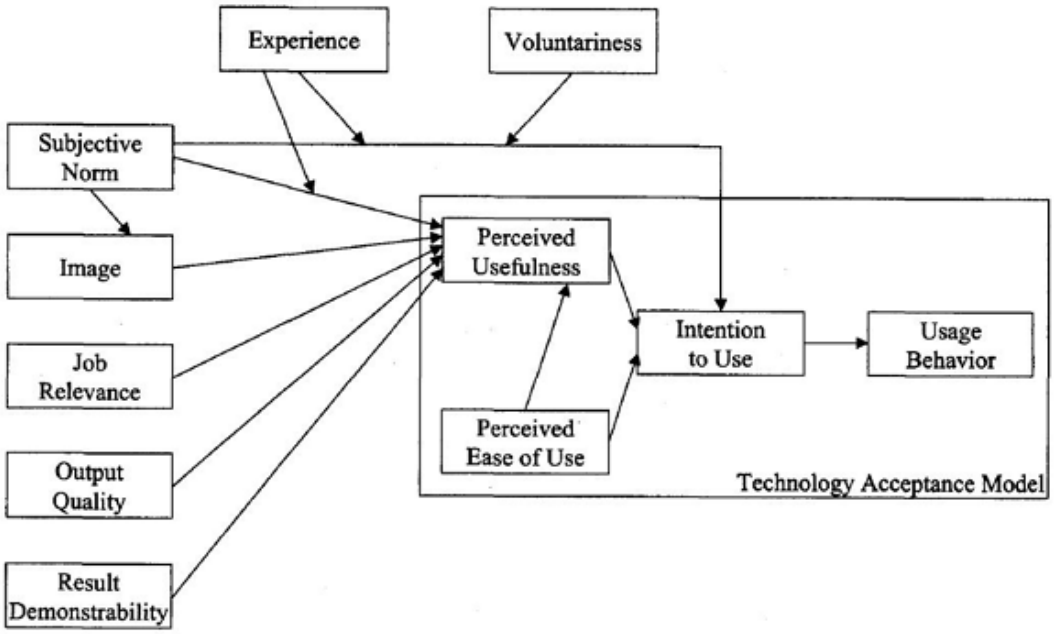


Figure 8. TAM2 (Source: Venkatesh and Davis, 2000)

2.7 Trust, Important Factor Influencing Consumer Intention

Trust is one of the most important factors of consumer adoption. Trust is directly related to the perceived beliefs, and because of this most of the consumers are afraid to use something new either in terms of products or services. Among other companies, the banking industry is strongly associated with the high level of Trust related to security and privacy issues. Trust is defined as a function of the degree of risk involved in the e-banking transaction, and the outcome of Trust is proposed to be reduced perceived risk, leading to positive intentions towards the adoption of e-banking (Yousafzai et al., 2003). They further explain that the lack of the physical presence and interaction between the bank personnel and the customers renders a unique environment, in which Trust is of vital importance (Yousafzai et al., 2010). In the same way, in different organizational literature, Trust is mostly defined as a belief or expectation about the other (Trusted) party, or as a behavioral intention or willingness to depend or rely on another party, coupled with a sense of vulnerability or risk if the Trust is violated (Mayer et al., 1995, Rousseau et al., 1998). Online Trust or Trust in electronic commerce is defined as a belief in the system characteristics, specifically belief in the competence, dependability and security of the system, under conditions of risk (Kini and Choobineh, 1998). To make the customer more confident banks should maintain the Trust based relationship with the customers because security and privacy are the most important

factors that make the customers hesitate to adopt internet banking. Sathye (1999) found that security and privacy concerns are identified as the "biggest obstacles" to the adoption of online banking in Australia. Trust is also more crucial and complex in internet banking than traditional banking due to its virtual environment. In the same way, Harridge-March et al. (2008) concluded that technology Trust is one of the determining factors of internet banking adoption. Similarly, from the research of consumer attitude towards internet banking, Jahangir and Begum (2008) found that consumers' Trust on security and privacy are both important factors in influencing the adoption of online banking in Bangladesh (Jahangir and Begum, 2008). Amin (2007) stated that Trust is regarded as "the Heart of the system" for online banking. Amin further specified that without a proper security and privacy, perhaps Internet banking is looked as a menace to the customers instead of banking channel alternatively.

Rousseau et al. (1998) explain the multidimensional nature of Trust as Deterrence-based Trust, calculus-based Trust, relational Trust, and institutional Trust. And they further specified that there are three phases of Trust development: (1) building (where Trust is formed or reformed), (2) stability (where Trust already exist), and (3) dissolution (where Trust declines). Similarly, online Trust is defined as consumer perceptions of how the site would deliver on expectations, how believable the site's information is, and how much confidence the site commands. From the survey findings, they concluded that the determinants of online Trust are different across site categories and consumers. Privacy and order fulfillment are the most influential determinants of Trust for sites in which both information risk and involvement are high, such as travel sites (Bart et al., 2005).

To address the e-commerce environment, Lu et al. (2003) specified that Trust is more crucial and complex in e-commerce environment than in general and traditional commerce due to its uncertain environment and information asymmetry (Cho et al., 2007, Lu et al., 2003). Most consumers refuse to use internet banking and are worried thinking that the personal information and transaction will be used and hacked by third parties without their knowledge (Luarn and Lin, 2005). Yousafzai et al. (2010) addressed that the customers will develop Trust on internet banking when they believe that their personal information will not be viewed, corrupted or stored by third parties. They further added that the collection, subsequent access, use and disclosure of their information will be consistent with their

expectation which is also termed as perceived privacy. So customers' perception of security and privacy are positively related to their Trust.

Security has been widely recognized as one of the most significant barriers to the adoption of internet banking (Daniel, 1999, Aladwani, 2001). Different kinds of literature suggest that there are so many technological tools available which can guarantee adequate security in the form of encryption, digital signature, firewall and so on, still consumer perceives this as a risky environment to do the transaction and use it (Bhimani, 1996). And the available literatures suggest that when the customers develop a positive perception of security, the Trust and confidence in the relationship will also increase (Yousafzai et al., 2010).

In the same way, perceived privacy is the consumer's ability to control (a) presence of other people in the environment during a market transaction or consumption behavior and (b) dissemination of information related to or provided during such transactions or behaviors to those who were not present (Goodwin, 1991).

So many researches have been done on Trust, perceived risk and its effect on internet banking adoption as well as online shopping such as on online relationship banking (Mukherjee and Nath, 2003), e-Trust model for online banking (Yousafzai et al., 2003), adoption of internet banking services in china (Sekhon et al., 2010), Trust and TAM model in online shopping (Gefen et al., 2003), to study The impact of Trust and perceived risk on internet banking adoption in India (Roy et al., 2012), to study the influence of Trust in internet banking adoption (Harridge-March et al., 2008), to study initial Trust and adoption of B2C e-commerce (Kim and Prabhakar, 2004), to study initial Trust, perceived risk and adoption of internet banking (Kim and Prabhakar, 2000) and so on, and all these studies show that Trust and perceived risk are the main determinant factors of adoption of internet banking.

2.8 Perceived Risk

Bauer has defined the perceived risk in terms of the uncertainty and unfavorable consequences associated with customer expectation(Bauer, 1960). Similarly, to define perceived risk, Cox and Rich (1964) argued that perceived risk consists of perceptions about the interests and the uncertainties involved in the buying decision. If the desired purchase objectives are not achieved, a consumer will experience unfavorable consequences. Generally

the loss which is created due to the uncertainty of using new technology or service is termed as perceived risk.

To address the perceived risk and Trust, Rotchanakitumnuai and Speece (2003) conducted a case study (in-depth interview) with the corporate customer in Thailand. And the findings were that Trust and security are the most critical issues, especially for the non-internet banking users who are much more service conscious, and do not Trust financial transactions made via web channels. Non-Internet banking users tend to have more negative management attitudes toward adoption and are more likely to claim lack of resources. Legal support is also a major barrier to Internet banking adoption for corporate customers in Thailand. Similarly from the study of influence of internet Trust Harridge-March et al. (2008) concluded that making the internet banking interface for the customers more attractive and easier to navigate is not enough to increase the adoption rate of internet banking. Trust-creating activities such as firewall, filtering routers to increase internet Trust and to diminish perceived risk must be continuously pursued. The most recent study from India, on the impact of Trust and Perceived risk on internet banking adoption by Roy et al. (2012) and the findings reveal that perceived risk has a negative impact on behavioral intention of internet banking adoption and Trust has a negative impact on perceived risk. A well-designed web site was also found to be helpful in facilitating easier use and also minimizing perceived risk concerns regarding internet banking usage. They further specified that financial institutions should give more attention to the perceived risk factor to retain existing customers and attract new customers. They also suggest that banks should build a web site with features to facilitate users' assessment of internet banking services and thus minimize the perceived risk and maximize the perceived ease of internet banking services.

According to Featherman and Pavlou (2003, p. 454), perceived risk is defined as “the potential for loss in the pursuit of the desired outcome of using an e-service”. They conducted the research in the field of system and e-service adoption and their purpose was to include measures of negative utility (potential losses) attributable to e-service adoption. Drawing from Perceived Risk Theory, specific risk facets were operationalized, integrated, and empirically tested within the Technology Acceptance Model resulting in a proposed e-services adoption model. And the results reveal that e-service adoption is adversely affected primarily by performance-based risk perceptions, and Perceived Ease of Use of the e-service reduced these risk concerns. They identified seven types of risks namely (i) performance risk,

(ii) Financial Risk, (iii) Time risk, (iv) Psychological risk, (v) Social risk, (vi) Privacy risk, and (vii) overall risk. The definitions of these risks are given in the table below:

Description and definition of perceived risk facets	
Perceived Risk Facet	Description—Definition
1. Performance risk	"The possibility of the product malfunctioning and not performing as it was designed and advertised and therefore failing to deliver the desired benefits.
2. Financial Risk	"The potential monetary outlay associated with the initial purchase price as well as the subsequent maintenance cost of the product". The current financial services research context expands this facet to include the recurring potential for financial loss due to fraud.
3. Time risk	Consumers may lose time when making a bad purchasing decision by wasting time researching and making the purchase, learning how to use a product or service only to have to replace it if it does not perform to expectations.
4. Psychological risk	The risk that the selection or performance of the producer will have a negative effect on the consumer's peace of mind or self-perception. Potential loss of self-esteem (ego loss) from the frustration of not achieving a buying goal.
5. Social risk	Potential loss of status in one's social group as a result of adopting a product or service, looking foolish or untrendy.
6. Privacy risk	Potential loss of control over personal information, such as when information about you is used without your knowledge or permission. The extreme case is where a consumer is "spoofed" meaning a criminal uses their identity to perform fraudulent transactions.
7. Overall risk	A general measure of perceived risk when all criteria are evaluated together.

Table 4. Description and Definition of Perceived risk Facets

Similarly Lee (2009) conducted a research to study the factors influencing the adoption of internet banking using integration model of TAM and TPB with perceived risk and perceived benefit factors in Taiwan. Many studies tested the influence of perceived risk on various innovation adoption such as internet shopping (Forsythe and Shi, 2003), e-services (Pavlou, 2003), internet banking (Kim and Prabhakar, 2000), for e-commerce (Kim and Prabhakar, 2004) and so on with all the positive and supportive findings. So the perceived risk is one of the main determinants of adoption of internet banking. The main dimensions of risk associated with internet banking adoption are security/privacy risk, Financial Risk, social risk, time/convenience risk, performance risk.

2.9 Research Model Framework

2.9.1 An Integration of TAM with Trust and Perceived Risk

TAM is an adoption of the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) and was mainly designed for modeling user acceptance of information technology. Ajzen and Fishbein (1980) assumed that individuals are usually rational and make systematic use of available information. So they developed the theory that could predict and understand the customer behavior and attitude towards performing that behavior. They suggested that TRA looks at the behavior intention rather than attitudes as the main predictors of behaviors. According to TRA, a person's actual behavior could be determined by considering her/his prior intention along with beliefs that the person would have for the given behavior (Davis Jr, 1986). Many researches have been done by adopting TRA, and still this is a good model to apply in the social science field. Although this is a general model, it has some limitations. Sheppard et al. (1988) pointed out two major limitations of TRA in their meta-analysis. The first one is intention – performance relations, because the number of factors in addition to intention determine whether the behavior is performed (e.g. resources, skills, and others' cooperation). And the second one is there is no provision in the model for considering whether the probability of failing to perform is due to one's behavior or due to one's intentions. In the same way, Davis et al. (1989) specify that TRA is a general model and it does not specify the beliefs that are operative for a particular behavior. Researchers using TRA must first identify the belief that is salient for subjects regarding the behavior under investigation. So to overcome these limitations, Ajzen (1985) extended the Theory of Reasoned Action by adding another construct called perceived behavioral control, which predicts the behavioral intentions and behavior, and Propounded a new model called the Theory of Planned Behavior (TPB).

According to TPB, the individual's performance of the certain behavior is determined by his/her intent to perform that behavior. The main difference between TRA and TPB is the Perceived behavioral control (PBC) as a determinant of intention, as well as control beliefs that affect the perceived behavioral control. The intent is itself informed by attitudes towards behavior, subjective norms about engaging in the behavior and perceptions about whether the individuals will be successfully engaged in their target behavior or not. Ajzen (1991) further explained that the theory of planned behavior, and perceived behavioral control, together with

behavioral intention, can be used directly to predict behavioral achievement. The purpose of this theory is to predict and understand motivational influences on the behavior that is not under the individual's volitional control. According to TPB, human action is guided by three kinds of considerations: (i) behavioral beliefs which are assumed to influence attitude towards behavior, (ii) normative belief which constitute the underlying determinants of subjective norms and (iii) control belief which provide the basis perceptions of behavioral control.

With the addition of new construct, TPB became the more advance model than TRA for the explanation of the human behavior, but still it has some major limitation. First, like TRA, TPB assumes proximity between intention and behavior, and thus the precise situational correspondence still remains vital for accurate prediction (Foxall, 1997). And the other one is, TPB only works when some aspect of the behavior is not under volitional control.

Similarly, the Decomposed Theory of Planned behavior (DTPB) is also the extension of TPB and integrating attributes from the Diffusion of Innovation theory, which is also a good model for the prediction, but still not tailored for the information system. Because of this, Davis (1985) develops a model called Technology Acceptance Model based on the TRA and TPB to explain and predict the system acceptance. Based on the same theoretical ground, Davis develops two different constructs Perceived Usefulness and Perceived Ease of Use, which are sufficient enough to predict the attitude of a user toward the use of the system. So the TAM model is the most suitable model to use for this research because this is the advance model which is developed on the basis of TRA and TPB and especially designed to test the information system acceptance. Davis et al. (1989) have specified that TAM is specifically tailored for modeling user acceptance of information system. The goal of TAM is to provide the detail explanation of determinants of computer or system acceptance. They further state that the key purpose of TAM is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes and intentions. According to TAM, the two particular beliefs are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), which are primarily relevant to information system acceptance behavior. Where Perceived Usefulness (PU) is defined as the prospective user's subjective probability that, using a specific application system will increase his or her job performance. And Perceived Ease of Use (PEOU) refers to the degree to which the prospective user expects the target system to be free of effort. According to the TAM, the Attitude towards behavior (A) is jointly determined by PU and PEOU. And PU is

determined by PEOU and other external variables. And they further state that the PEOU is totally determined by external variables (Davis et al., 1989).

Thus, TAM is originally developed to test the consumer acceptance of information system. Later different researches have been done in other sectors and services than information system, such as online banking, internet banking, e-commerce and so on. However, to address additional field original TAM is not sufficient. Davis (1989) noted that future technology acceptance research needs to address how other variables affect usefulness, ease of use, and user acceptance. To fulfill the need, different researchers developed new models by integrating different theoretical models and adding additional constructs according to the nature of research and purpose of the study. To address online shopping Gefen et al. (2003) developed and proposed a model called Trust, and TAM in online shopping where he added a new construct Trust in addition to Perceived Usefulness and Perceived Ease of Use (Gefen et al., 2003). According to Trust and TAM model, users feel fearful to transact with e-vender in that transactions are conducted through the Internet. They further specified that Trust helps decrease these fears and facilitate the transaction in e-commerce by reducing fraud, uncertainties and potential risks (Gefen, 2000, Gefen et al., 2003, Pavlou, 2003). In the same way, Gefen (2000) states that to use and adopt the e-commerce Trust is the most important determining factor. He further specified that Trust is the confidence a person has in his or her favorable expectations of what other people will do, based, in many cases, on previous interactions. To define Trust in internet banking, Yousafzai (2003) concluded that Trust in electronic banking and its infrastructure reduces customers' transactions, specific uncertainty and risks.

Perceived risk in online banking is defined as the subjectively determined expectation of loss by an online bank user in contemplating a particular online transaction. And the dimensions of risk are Security/privacy risk, Financial Risk, Social risk, Time/Convenience risk and Performance risk, which are the most important risks to include (Lee, 2009). The study of risk is very important for online banking, because this is all about the economic transactions, especially for the internet and online banking case, in which the bank and the customer are physically separated. Because of this, when processing online transactions, customers feel high risk and insecure. As stated by Ba (2001), more experienced online customers have more information, knowledge and ideas about using online banking and therefore, they perceive less risk and high Trust in online transactions. Most of the customers' main concerns

would be the channel of the transaction, the network of the online banking and its reliability. Most customers are afraid to transmit personal information, financial data over the electronic network because there is a risk that other third party can intercept their information without any information or knowledge to them. So the technological competency is very important for customers' information processing behavior and perceived Trust. Ba (2001) specified that the Trust is one of the important factors for the banks reputation also. From the service and security provided by the banks, customers feel whether the service is good or bad and which directly affect using the website and services of the bank.

Yousafzai et al. (2010) states that, in the online transactions, perceived risk is reduced by Trust. There is a strong link and relationship between the Trust and perceived risk. A number of researches have been done in the internet banking sector integrating the perceived risk and Trust as a risk reliever. Kuisma et al. (2007) investigated the resistance to internet banking and their connections to value of individuals and concluded that both functional and psychological barriers arise from service, channel, consumer and communication. Consumers still prefer some kind of traditional banks and customers still prefer to use ATM services because of website and internet's insecurity. Furthermore, they stated that people perceived the expensive accessibility to access the internet banking. And most consumers feel that perceived risk because of virtual banking and no face to face communication and contact with the bank personnel. In the same way, Sekhon et al. (2010) conducted their research in China to find the interrelationship between Trust, perceived risk and usage intention regarding the internet banking, and the findings reveal that there is a significant relationship between Trust and perceived risk and that both are crucial in explaining the internet banking usage intention. Furthermore, Trust in the bank is fundamental not only to reducing risk perceptions of internet banking service (IBS) in general but also to building Trust in the banks' competence in terms of IBS activity.

Attitude is one of the important and fundamental factors influencing consumers' behavior, and therefore, attracted considerable attention from researchers to study |consumer behavior in different aspects and their relationship with the institutions. Venkatesh et al. (2003) defined attitude towards internet banking as an individuals' overall affective reaction to using the internet for his or her banking activities. In the same way, Fishbein and Ajzen (1975) specified that attitude towards behavior is all about the evaluation of belief. They define attitude as an individual's positive and negative feelings (evaluation affect) about performing

the target behavior. Different researches reveal that the consumer attitude towards adoption of internet banking, and mobile banking are determined by several external variables such as demographic, motivation, perceived risk and behavior towards using some technologies. Taylor and Todd (1995) proposed that the attitudinal belief towards an innovation could be measured using five perceived attributes such as relative advantage, compatibility, complexity, and trialability, which are the attributes from Rogers' Diffusion of Innovation theory.

To study the relationship between attitude and online banking, Karjaluoto et al. (2002b) conducted a research in finish market. The purpose of their research was to determine those factors that influence the formation of attitude towards Internet banking on the one hand, and their relation to the use of online banking services on the other. And the result shows that prior experience of computers and technology, as well as attitude towards computers, influences both attitude towards online banking and actual behavior. Specifically, prior computer experience had a significant impact on online banking usage. Their result also suggests that a typical online banking user is relatively young, well-educated with the high level of income, a family man with a good job.

Internet banking is considered a new technology and associated with the e-service, the research model for this research will be based on the extension model of TAM, proposed by Gefen et al. (2003), called Trust and TAM and adding one more attribute called perceived risk. So, an extension of Trust and TAM with integrating perceived risk would be the most comprehensive model to study the behavioral intention of internet banking adoption. Perceived risk is used as a determinant of PU and attitude, and is related with intention. Self-Efficacy would be the determinants of Perceived Ease of Use, which is defined as a belief that an individual has the capabilities to execute the particular behavior with IT (Venkatesh, 2000). The different study shows that Self-Efficacy has a positive effect on Perceived Ease of Use (Agarwal and Karahanna, 2000, Venkatesh, 2000). And another determinant of Perceived Ease of Use is Facilitating Condition, which is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system[5]. In other words, Facilitating Conditions is defined as the external environments of helping users overcome barriers and hurdles to use a new IT (Venkatesh and Davis, 1996).

[5] http://www.vvenkatesh.com/it/organizations/theoretical_models.asp

Thus, the TAM provides the ground and framework to investigate the effects of external variables on system usage (Hong et al., 2001). Several researchers extend the TAM adding other external variable according to the needs and requirement of the research purpose. The Extension of Technology Acceptance Model (TAM2) is also one of the extensions of TAM where Venkatesh and Davis (2000) added some external factors (external variable) which affect the Perceived Usefulness in the use of the system in the organization. This model may not be suitable for me because the variables which are more relevant for my research are not included there. Because the research field is different, they develop and test TAM2 in the organization to test the use of the system, where my field is out of the organization and from the customer point of view. So, the original TAM integrating the factors Trust and perceived risk would be the perfect and comprehensive model for my research.

2.10 Hypothesis Development

2.10.1 Hypothesis about TAM

Determinants of TAM: Perceived Usefulness, Perceived Ease of Use, Attitude, Intention

This research model adopts the basic theoretical framework of Technology acceptance model (TAM). As Davis Jr (1986) specified that attitude of the user towards the system was a major determinant of whether the user will actually accept or reject the system. He further explained that the attitude of the user was influenced by two major beliefs: Perceived Usefulness and Perceived Ease of Use, and Perceived Usefulness was influenced by Perceived Ease of Use. Davis defined Perceived Usefulness as the degree to which the person believes that using the particular system would enhance her/his job performance (For this setting, using the internet banking would improve the banking performance), whereas the Perceived Ease of Use was defined as the degree to which the person believes that using the particular system would be free of effort (it is easy to use the internet banking). So from this reference (see also (Cheng et al., 2006, Lee, 2009)), this research proposes the following hypothesis:

- **Hypothesis 1 (H1):** Consumers' attitude positively influences their intention to use internet banking.

- **Hypothesis 2 (H2):** Perceived Usefulness positively influences the intention to use internet banking.
- **Hypothesis 3 (H3)**: Perceived Usefulness positively influences the consumer attitude to use internet banking.
- **Hypothesis 4 (H4):** Perceived Ease of positively influences attitude to use internet banking.
- **Hypothesis 5 (H5):** Perceived Ease of Use positively influences Perceived Usefulness to use internet banking.

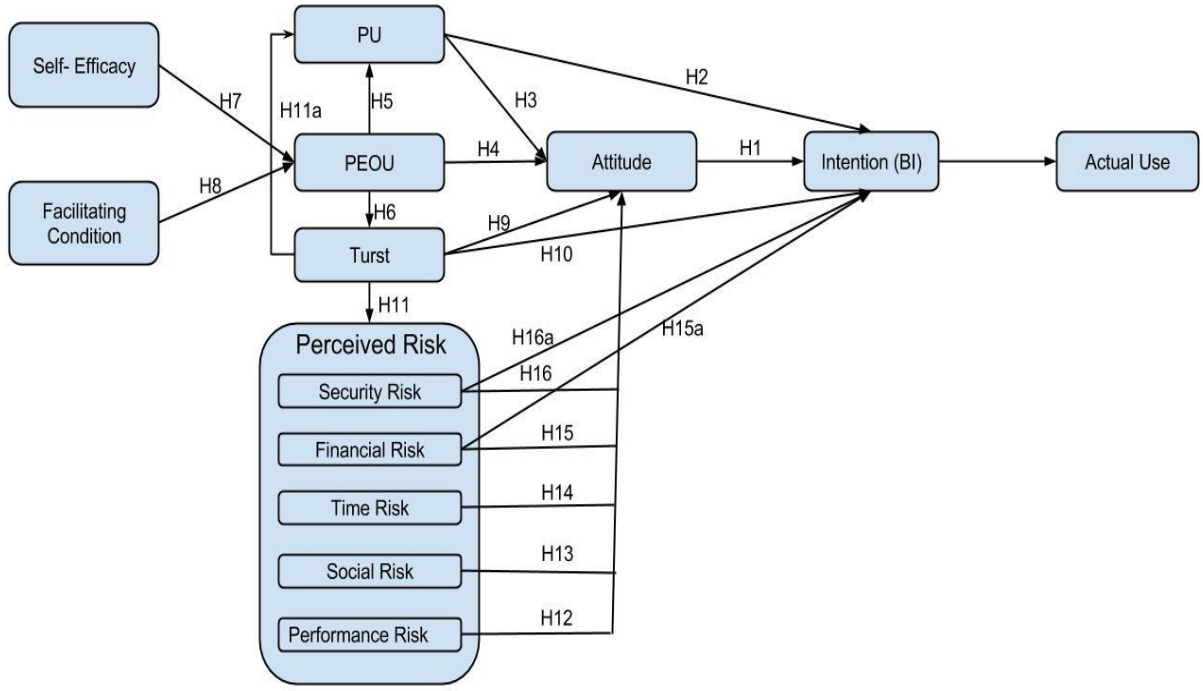


Figure 9. The Proposed Research Model

Determinants of Perceived Ease of Use (PEOU): Self-Efficacy, Facilitating Conditions

According to the Davis et al. (1989), PEOU is hypothesized to have a significant effect on Attitude , and the relationship between PU, PEOU is theorized as :

PU = PEOU + External Variables

PEOU = External variables.

So the main determinants of PEOU as an external variables are Self-Efficacy and Facilitating Conditions. Self-Efficacy is defined as a belief that an individual has the capabilities to

execute the particular behavior with IT (Venkatesh, 2000). So if the system is easy to use, easy to interact with, then the user can perceive the high sense of efficacy to use that system. So in the case of internet banking too, when a user perceives that internet banking is easy to use, easy to interact, he/she recognizes his/her high Self-Efficacy.

Facilitating Conditions is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh, 2013)[6]. So the Facilitating Conditions is the external factors or external environment to help the user to use the particular system. So in case of internet banking also if the user has supporting resources to use the system then he/she feels the easy way to use the system. Similarly, when the user is more confident to use the internet banking means, if consumer has high Self-Efficacy and if, he is aware of the technological or other external resource to help when needed, will increase the Trust level of the consumer to use the internet banking. Thus, accordingly this research proposed the following hypothesis:

- **Hypothesis 6 (H6):** PEOU positively influences the Trust in using internet banking.
- **Hypothesis 7 (H7):** Self-Efficacy has a positive impact on PEOU.
- **Hypothesis 8 (H8):** Facilitating Conditions positively influence the PEOU.

Hypothesis about Trust and Perceived risk

Yousafzai et al. (2009, p. 592) define Trust on internet banking as "willingness to perform banking transactions on the internet expecting that the bank will fulfill its obligations, irrespective of the consumer's ability to monitor or control the bank's actions on the internet".

To explain the relationship between Trust and risk, Rousseau et al. (1998) specified that the relation between Trust and risk is reciprocal. Risk creates an opportunity for Trust, which reduces the perceived risk and leads to risk taking. So Mayer et al. (1995) state that the need for Trust only arises in a risky situation. Similarly Yousafzai et al. (2003) propose an e-Trust model for internet banking and state that Trust on the electronic banking reduces customer's transaction specific uncertainty and related risk associated with the possibility that a bank might behave opportunistically. They further specify that in the case of internet banking when

[6] http://www.vvenkatesh.com/it/organizations/theoretical_models.asp

the bank can be Trusted to show ability, benevolence and integrity, then there is much less risk involved in interacting with the bank.

The previous study on perceived risk and Trust in the field of internet banking shows that this is a new emerging concept in the field, such as from Trust perspective (Yousafzai et al., 2003, Rotchanakitumnuai and Speece, 2003, Mukherjee and Nath, 2003), perceived risk perspective (Martins et al., 2014, Featherman and Pavlou, 2003), and perceived risk and Trust perspective (Lee, 2009, Sekhon et al., 2010, Pavlou, 2003, Roy et al., 2012) and so on. Thus, accordingly, this research proposed the following hypothesis:

- **Hypothesis 9 (H9):** Trust positively influence consumer attitude to use internet banking.
- **Hypothesis 10 (H10):** Trust positively influences the intention to use internet banking.
- **Hypothesis 11 (H11):** consumer Trust negatively influences the perceived risk to use the internet banking.
- **Hypothesis 11a (H11a):** Trust has the positive impact on PU to use internet banking.

Hypothesis about Perceived risk

The most influential types of risk are security/privacy, financial, social, time, and performance risk (Lee, 2009). The performance risk refers to the losses incurred by deficiency or malfunction of online banking websites. This is more output oriented and technology related and is mostly related with the performance of the system such as transaction speed, convenient, server response, interactive website and so on. In the same way, according to Featherman and Pavlou (2003), social risk is the potential loss of status in one's social group as a result of adopting a product or service, looking foolish or untrendy, time risk is defined as wasting time in terms of researching the purchasing, learning how to do it. In the same way, Financial Risk is all related to the money and its transaction. So the risk associated with the transaction error and account misuse creates the barrier to adopt the internet banking. And all the fraud related risk such as hacking, information intercepting, modification of data, and denial of service are the privacy/security risk which directly influence the consumer to accept the online service. Thus, this research has proposed the following hypotheses:

- **Hypothesis 12 (H12):** Performance risk negatively influences attitude to use internet banking.
- **Hypothesis 13 (H13):** Social risk negatively influences the attitudes towards the use of internet banking.
- **Hypothesis 14 (H14):** Time risk negatively influences attitudes towards the use of internet banking.
- **Hypothesis 15 (H15):** Financial Risk negatively influences attitude towards the use of internet banking.
- **Hypothesis 15a (H15a):** Financial Risk negatively influences the intention to use internet banking.
- **Hypothesis 16 (H16):** Security risk negatively influences attitude towards the use of internet banking.
- **Hypothesis 16a (H16a):** Security risk negatively influences intention to use internet banking.

3 Methodology

3.1 Introduction

This chapter outlines and discusses the various methods of research used in this study, which includes the details of the research purpose, research strategy, and research approach, different sources of data gathered, data collection and analytical methods such as sampling techniques, reliability, validity and data analysis plan.

Research is defined as a "step by step process that involves the collecting, recording, analyzing and interpreting of information"(Wilson, 2014, p. 6). Which means research is all about generating answers to questions so it is a process of inquiry and investigation which follow systematic and methodological ways to increase the advance knowledge. Similarly Wilson (2014) defines the business research as the systematic and objective process of collecting, recording, analyzing and interpreting data for the purpose of solving managerial problems, where managerial problems can be related to any business functions such as HR, finance, marketing, research and development and so on. In the same way, Zikmund et al. (2012) states business research as an application of the scientific methods in finding the truth for different business phenomena, which includes different activities from defining business problems, opportunities, generating and evaluating ideas, monitoring performance and understanding the business processes. Wilson (2014, p. 7) further discusses fundamental differences between methodology and methods, a methodology is defined as "the approach and strategy used to conduct research". It includes all the procedures from the theoretical application to the collection and analysis of the data. And method refers to the different techniques which are used to collect the data to analyze it.

Wilson (2014) describes the research design as a detailed framework or the plan which helps the researcher to guide through the research processes by allowing a greater possibility of achieving the research objectives. From the conceptual part, different concepts of research are available. A brief explanation of each concept is given below.

3.2 Research Purpose

Research can be categorized into different types according to the research questions, purpose and problem of the study. There are three different types of research study available on the basis of purpose of research, which are exploratory research, descriptive research and explanatory research.

3.2.1 Exploratory research

Zikmund et al. (2012) state that, exploratory research is the most suitable one to find the best business opportunities where the situation is more ambiguous. So to clarify the research problem and to better explain the problem in the difficult situation exploratory research is mostly preferred. Wilson (2014) argues that this type of research is largely qualitative, and mostly includes focus groups, in-depth interviews, different historical analysis and observation, so they may not provide the conclusive answer to the problem but provides the better way to the further research.

3.2.2 Descriptive research

According to Zikmund et al. (2012) descriptive research is mostly appropriate when the purpose of research is to describe characteristics of objects, people, groups, organizations, or environments. It means that descriptive research is mainly addressing the WHs (who, what, when, where and how) questions. In the same way, Wilson (2014) argues that descriptive research is set out to describe existing or past phenomena using some observation. This type of research can be either qualitative or quantitative and typically surveys are used to gather data and analyzed using statistical tools. Similarly, according to Robson, the objective of descriptive research is to describe a precise profile of persons, events or situations (Robson, 2002), and it may be an extension of or a forerunner to, a piece of exploratory research or, more often, a piece of explanatory research (Saunders et al., 2012).

3.2.3 Explanatory research

Studies which establish the relationship (causal relationship) between variables may be regard as an explanatory research. The main emphasis of this type of study is on studying a

situation or a problem in order to explain the relationship between variables (Saunders et al., 2012).

As Wilson (2014) argues, descriptive research is best suited to study existing or past phenomena and which mostly addresses the question like what. So to understand the factors influencing adoption of internet banking in Nepal, Descriptive research is mostly suitable because descriptive research is mostly useful to explain the particular group of people or population and mostly answers the question starting with 'what'. The starting point of this research is research problem as what are the factors influencing adoption of internet banking in Nepal, and on the basis of this research problem, the literature review was conducted, different construct framework developed and test the different hypothesis using the survey mechanism. So to address the particular group population and to address this kind of research question and purpose descriptive research is mostly suitable.

3.3 Research Approach

3.3.1 Inductive and Deductive Research Approach

These two theoretical approaches propose two different ways of drawing conclusion while conducting research. So all the research methods are often associated with one of the two different approaches – inductive and deductive research approach. The inductive research is defined as "the logical process of establishing a general proposition on the basis of observation of particular facts" (Zikmund et al., 2012, p. 44). Hyde (2000, p.83) defines inductive approach as "a theory-building process, starting with the observation of specific instances and seeking to establish generalization about the phenomenon under investigation".

On the other hand, the deductive approach begins with and applies a well-known theory. Hyde (2000, p. 83) defines deductive approach as "a theory testing process which commences with an established theory or generalization, and seeks to see if the theory applies to specific instances". Similarly, Zikmund et al. (2012, p. 44) defines deductive approach as "the logical process of deriving a conclusion about a specific instance based on a known general premise or something known to be true".

So from the above analysis, this study is based on the deductive research approach. There is so much literature available in the particular topic, and especially in the developing and underdeveloped countries. This is a new approach for the banking sector too. So for this research also, there are different relevant articles, books, journals available addressing the need and situation of developing countries like India, Pakistan, China, and Thailand and so on. So this research is based on the principle followed by deductive approach starting from existing theory conducting the literature review, and developing the hypothesis to test the theories, and follows the quantitative methods to collect and analyze the data to reach the conclusion. And at the same time, as compared to the inductive approach, the deductive approach has lower risk and is less time-consuming approach.

All the theories and models are based on the previous models such as technology acceptance model and all the literature which have been done using TAM and addressing the research question like the adoption of internet banking are taken into consideration. From the literature review different hypotheses are developed to test the theories. For this analysis, survey method and quantitative approach is used and different statistical techniques are used to analyze the result before drawing the conclusion. So principally starting from theory to conclusion, this research follows the deductive research approach.

3.3.2 Qualitative and quantitative Research Approach

Qualitative and quantitative methods are two broad methods used in research. As the meaning implies that quantitative is more associated with the numerical data and with statistical tools and techniques, whereas qualitative is more associated with the non-numerical examination and interpretation of observation for the purpose of discovering the meaning and pattern of relationships. Wilson (2014) specifies that quantitative research examines data that are numerical while qualitative research examines data that are narrative. And the qualitative research is more associated with the inductive research and quantitative research is more associated with the deductive research.

Similarly, Zikmund et al. (2012, p.133) define qualitative business research as “Research that addresses business objectives through techniques that allow the researcher to provide elaborate interpretations of phenomena without depending on numerical measurement; its focus is on discovering true inner meanings and new insights”. They further present the conditions where qualitative research is more suitable and useful. IT is used when it is

difficult to develop specific and actionable problem statements or research objectives, when the research objective is to develop an understanding of some phenomena in great detail and in much depth and when the research objective is to learn how a phenomena occurs in its natural setting or to learn how to express some concept in colloquial terms and so on. In the same way, Zikmund et al. (2012, p. 134) define quantitative business research as "Business research that addresses research objectives through empirical assessments that involve numerical measurement and analysis".

Since the main objective of this study is to find the important factors affecting the implementation of internet banking in Nepal, I have chosen structured framework, to develop hypothesis focusing on quantitative research methods to collect data and analyze the result. So for this research, quantitative research is used.

3.4 Research Strategies

Saunders et al. (2012) specify that there are different research strategies you can apply and each strategy can be used for exploratory, descriptive and explanatory research. They further state that no research strategy is superior or inferior to any other but the most important is whether it will enable to answer the particular research question(s) and meet research objectives. They further specify that "choice of research strategy will be guided by your research question(s) and objectives, the extent of existing knowledge, the amount of time and other resources you have available, as well as your own philosophical underpinnings" (Saunders et al., 2012, p. 141).

Similarly, Yin (2013) specifies that each researcher should evaluate three different factors while selecting the research strategy. They are: a) the type of research question posed, b) the extent of control a researcher has over the actual behavioral event, and c) the degree of focus on contemporary as opposed to the entirely historical event. Yin (2013) further states the relationship between these three conditions and five different research methods as follows:

Method (Strategy)	Form of Research Question	Requires Control of Behavioral Events?	Focus on Contemporary Events?
Experiment	How, Why?	Yes	Yes
Survey	Who, What, Where, How many, How much?	No	Yes
Archival Analysis	Who, What, Where, How many, How much?	No	Yes/No
History	How, Why?	No	No
Case Study	How, Why?	No	Yes

Table 5. Research Strategies

So the research strategy depends on the purpose of the research and research questions. This study aims to find the factors affecting implementation of internet banking in Nepal. The study focuses on the contemporary events and not requires control over behavioral events, and the research question of this study is in the form of *what*, and the most suitable research strategy is Survey.

3.5 Sampling

Zikmund et al. (2012) defines a sample as a part or subset of the larger population, and sampling is used to estimate the hidden characteristics of a population. This research focuses on the survey sampling. Survey strategy allows the researcher to collect quantitative data which can be analyzed using descriptive statistics.

There are, broadly speaking, two different types of sampling techniques available: probability sampling and non- probability sampling. According to Zikmund et al. (2012, p. 395), probability sampling is defined as "a sampling technique in which every member of the population has a known, nonzero probability of selection". On the other hand, non-probability sampling is defined as "a sampling technique in which units of the sample are selected on the basis of personal judgment or convenience; the probability of any particular member of the population being chosen is unknown" (Zikmund et al., 2012, p. 396). One type of non- probability sampling techniques is convenience sampling. (Zikmund et al., 2012, p.396) defines the convenience sampling as "the sampling procedure of obtaining those people or units that are most conveniently available". It is a type of non-probability sampling

which involves the sample being drawn from that part of the population which is close at hand. This is the easiest and the most convenient sampling technique.

For this research also convenience sampling was used to engage respondents. Especially students from undergraduate and graduate levels from different colleges in Kathmandu valley were included in the survey. The situation and case of Nepal are quite different from other developed countries. Most of the banks provide their service mostly in the city areas only. So only a small portion of the population of Nepal is actually using the banking services. And most of the banks customers are residing in the city area as compared to rural area. This research is all about the understanding of consumer attitude towards internet banking attitude. So the target customers for the banks are students who are studying in undergraduate and graduate levels inside Kathmandu valley. The reason behind the selecting target sample group as a student of undergraduate and graduate level is, most of the internet banking users are residing in the cities areas as compared to rural areas. And on the other hand, these users need to be literate and skill enough to use the internet banking services. Similarly almost all the banks have the website with English language, so the customer should be able to understand the English language properly while using the online banking services. Thus, to cover all these situations, I have chosen undergraduate and graduate students as a target sample for this study.

So I have chosen this sampling because of the time and cost effectiveness also. This sampling technique is the least expensive, and more data can be collected within a short period of time. The customers who can understand the service and who have an idea to use that service can only consume this type of service. For that purpose, students are the perfect and better target group for this research.

3.6 Developing Item Scale (Constructs)

All the constructs for the measurement were adopted from the existing literature. Since this research is totally based on the Technology Acceptance Model (TAM), and all the constructs which were used to test the model were adopted from the previous theory. Similarly, for the Trust and Perceived risk also previously used construct were taken and modified according to the need and objective of the research. Summary of main constructs, their definitions and sources are as follows:

Item Scale (Construct)	Definition	Source
Perceived Usefulness (PU)	The degree to which a person believes that using a particular system would enhance his or her performance to use internet banking.	Davis et al., 1989
Perceived Ease of Use (PEOU)	The degree to which a person believes that using a particular system would be free of effort.	Davis et al., 1989
Self- Efficacy	The degree to which a person's self-confidence in his or her ability to use internet banking	Bendura, 1977 Taylor and Todd, 1995
Facilitating Condition	The degree to which a person believes that the required resources exists to support use of internet banking	Taylor and Todd, 1995
Trust	Trust is the confidence a person has in his or her favorable expectations of what other people will do, based, in many cases, on previous inter-actions.	Gefen, 2000
Attitude	The person's positive or negative feeling about internet banking adoption	Davis et al., 1989
Intention	A person's intention to adopt internet banking	Davis et al., 1989
Perceived Risk	Possible loss when pursuing the desired result of using an e-service	Feaatherman and Pavlou, 2003
Security Risk	This is defined as a potential loss due to fraud or hacker compromising the security of the internet bank user.	Lee, 2009
Financial Risk	The potential monetary outlay associated with the initial purchase price as well as the subsequent maintenance cost of the product	Feaatherman and Pavlou, 2003 (Grewal et al., 1994)
Time Risk	Consumers may lose time when making a bad purchasing decision by wasting time researching and making the purchase, learning how to use a product or service only to have to replace it if it does not perform to expectations.	Feaatherman and Pavlou, 2003
Social Risk	Potential loss of status in one's social group as a result of adopting a product or service, looking foolish or untrendy.	Feaatherman and Pavlou, 2003
Performance Risk	The possibility of the product malfunctioning and not performing as it was designed and advertised and therefore failing to deliver the desired benefits.	Feaatherman and Pavlou, 2003 (Grewal et al., 1994)

Table 6. Item Scale definition and source

3.7 Data Collection Method

3.7.1 Survey and Questionnaire

Survey is one of the forms of research strategy which is associated with the deductive research approach. Survey is the most popular data collection method in business and management researches and mostly used to answer who, what, where, how much and how many questions. A survey research strategy allows the researcher to collect the large sample of data collection from the large sample group, and is best suited to address the descriptive type of research. So the survey strategy gives the researcher the way to collect quantitative data which can be analyzed quantitatively using descriptive and inferential statistics (Saunders et al., 2012).

For this research, survey strategy was used as the primary data collection technique. This research follows the principle of the deductive approach, quantitative techniques and descriptive research approach, and to address all these approaches survey strategy is the most appropriate. The data collected using survey strategy can be used to find the relationship between different variables, and model the relationship. It allows the researcher to find the right sample size for sampling which is used to generate the findings to represent the whole population.

A questionnaire is a method of primary data collection which comprises a set of defined questions which are designed to generate first-hand data suitable for achieving the objectives of the particular research project. The questionnaire can be used to gather both qualitative and quantitative data. This is a very popular data collection method used for primary data collection to cover large sets of data, and this is capable of generating effective and accurate data in a cost effective way.

After the extended literature review, the questionnaire was developed. After finalizing, a kind of pilot study was conducted in order to identify and eliminate the potential problem. 10 bank users answer the questions, and based on the feedback; the questionnaire was modified and finalized for the final distribution. These 10 banks users are the active banks users from Nepal.

The final version of questionnaire consists of two sections. Section one gathers information on internet usage, banking habits and customer perception of using internet banking services

and the section two gathers the general information of the respondents like age, occupation, gender and so on. The five-point Likert scale is used for the statement for the first section ranging from "1" for Strongly Disagree to "5" for Strongly Agree.

From the section one, different constructs were used to test the customers' perception towards the internet banking and its service. To test the constructs from the TAM model such as Perceived Usefulness and Perceived Ease of Use five different item scales were used and were borrowed from the existing literature as presented in the table above. All the item scale consist the Likert scale value ranging from "1" to "5", where 1 represents Strongly Disagree and 5 for strongly agree. In the similar way to test the attitude and intention of the customers towards internet banking, again three-item scale for each were used and Likert scale from 1 to 5 were used to record the answer. The following table presents the different constructs and their variables:

Constructs	
Perceived Usefulness (PU)	
PU1	Using Internet Banking enables me to accomplish my banking activities more quickly.
PU2	Using Internet Banking makes me easier to carry out my banking activities.
PU3	Using Internet Banking enhances my effectiveness and efficiency in utilizing banking services.
PU4	Using Internet Banking will improve my performance of banking activities.
PU5	Overall, I find Internet Banking is useful and advantageous.
Perceived Ease of Use (PEOU)	
PEOU1	Learning to use Internet Banking is easy to me.
PEOU2	It is easy to use Internet Banking to accomplish my banking activities.
PEOU3	Interaction with Internet Banking is clear and understandable.
PEOU5	The Internet Banking site provides helpful guidelines to perform my banking activities.
PEOU6	Overall, I find the Internet Banking is easy to use.
Attitude Towards Behavior (ATT)	
ATT1	Using Internet Banking is a good idea.
ATT2	I like to use Internet Banking.
ATT3	It is desirable to use Internet Banking.
Intention towards Use (INT)	

INT1	I would use Internet Banking for my banking needs.
INT2	I intend to use Internet Banking in near future.
INT4	I will recommend others to use Internet Banking.

Table 7. Item Scales (PU, PEOU, ATT and INT)

Trust is another important factor for the customers' perception, so to measure the Trust construct five different item scales were used and Likert scale values from 1 to 5 were used.

For the Self-Efficacy and Facilitating Condition, four item scales each were used, which represent the self-confidence to use the internet banking and facilitating resources available to support to use the internet banking respectively. The following table shows the Trust and its attributes:

Trust (T)	
T1	I believe, the Internet Banking site is Trustworthy.
T2	I believe, Internet Banking (Bank) keeps its promise and commitments.
T4	I believe, my personal information is kept confident while using internet banking.
T5	I believe, transactions conducted through internet banking are secure.
T6	I Trust my bank's online banking site.
Self-Efficacy (SE)	
SE1	I have the confidence to use Internet Banking.
SE2	I am confident of using Internet Banking if I have only online instruction available.
SE3	I don't need help or guideline by other people to use Internet Banking.
SE4	I don't feel difficult to use Internet Banking.
Facilitating Conditions (FC)	
FC1	I have the resources necessary to use Internet Banking.
FC2	I have the knowledge necessary to use Internet Banking.
FC3	I have a person available for assistance while using Internet Banking.
FC4	I have easy accessibility to use the Internet Banking.

Table 8. Item Scales (Trust, Self-Efficacy and Facilitating Condition)

On the other hand, to measure the customers' perception regarding the risk issue, different risk factors were tested, such as Security risk which is more about the security aspects of the banking transactions, perceived risk deals with the performance related issue, Financial Risk, social risk and time risk. So to measure the security risk, performance risk and finance risk,

three different item scales of each were used and for the social risk and time risk, two different items scales were used. Likert scales value from 1 to 5 was used to record the answer. All the risk construct contain the negative value for the Likert scale so were entered as a reverse coding while entering into the SPSS.

Perceived Risk	
Security Risk (SR)	
SR1	I worry about giving my ATM number or Login to Internet Banking site.
SR3	I worry about, the Internet Banking system is not secure.
SR4	I worry about, I will lose control of my personal detail and others will misuse my data.
Performance Risk (PR)	
PR1	Internet banking might not perform well and create problem while doing banking transactions.
PR2	Internet Banking servers and site may not perform well and process payment incorrectly.
PR3	The security systems built into the internet banking system are not strong enough to protect my account.
Financial Risk (FR)	
FR1	I am afraid about the chances of losing money if I use Internet Banking are high.
FR2	I am afraid about; I will lose control of my bank account.
FR3	I am afraid about, using Internet Banking my money will lose and will not be covered by the bank.
Social Risk (SR)	
SOR1	If I use the Internet Banking and something went wrong with the online transaction, other people think less of me.
SOR2	If I use Internet Banking, it will negatively affect the way others think of me.
Time Risk (TR)	
TR1	It would take me lots of time to learn how to use Internet Banking services.
TR2	Using Internet Banking would lead to a loss of convenience for me because I would have to waste a lot of time fixing payment error and setup error.

Table 9. Item Scales Perceived Risk

The printed questionnaires were distributed to the bachelor and master level students in three different colleges in Kathmandu valley. With the help of my friends and the program

coordinators of those colleges, all the questionnaires were distributed to the students of different semesters. Before distributing the questionnaires, we had a short discussion about the time and collection procedure, so with the help of my friends and the program coordinator, questionnaires were distributed to the students while they were in the class and gave them 15 to 20 min to fill up the questionnaires. The students were allowed to ask questions if they were confused. After 20 minutes all the questionnaires were collected. It was the mechanism that we used to get our questionnaires filled up in all the three colleges. Since all the questionnaires were distributed in the classroom and the students got the chance to interact with others if they got confused, the response rate was very high. Help was offered in the form of questions clarification. It is just the explanation what the question means, there is no any other guideline regarding you suppose to do this or that.

The questionnaires were distributed to 250 respondents and 240 were received. After careful analysis of those received data for missing and incomplete responses 210 usable data sets were entered into SPSS and analyzed.

3.8 Testing the Quality of Research

To make the research more credible, it is essential to test the quality of the research. Reliability and validity are the main issues which should be addressed to make the research more credible. As Saunders et al. (2012) specifies in order to reduce the possibility of getting wrong answers, attention has to be paid to two particular emphases on research design: reliability and validity.

3.8.1 Reliability

Reliability can be defined as the degree to which measurements are free from error and provide stable and consistent results. As stated by Saunders et al. (2012) reliability can be assessed by the following questions (Easterby-Smith et al., 2012).

1. Will the measures yield the same results on other occasions?
2. Will similar observations be reached by other observers?
3. Is there transparency in how sense was made from the raw data?

Reliability is the key indicator of the measure of internal consistency. So consistency is the key of reliability. "Coefficient alpha (α) is the most commonly applied estimate of a multiple-item scale's reliability. It represents the average of all possible split-half reliabilities for a construct." (Zikmund et al., 2012, p. 303). The value of coefficient α ranges from "0" to "1" where "0" means no internal consistency and "1" means complete consistent. And scale between 0.80 and 0.95 are considered very good reliability and scale between 0.60 and 0.70 indicates fair reliability and value less than 0.60 indicate poor reliability. So prior to data analysis, the Cronbach's alpha was computed for each construct and their attributes to test for reliability.

Reliability Analysis

Construct	**Item**	**No. of Items**	**Cronbach Alpha**
Perceived Usefulness (PU)	PU1, PU2, PU3, PU4, PU5	5	.757
Perceived Ease of Use (PEOU)	PEOU1, PEOU2, PEOU3, PEOU4, PEOU5	5	.756
Attitude Towards Behavior (ATT)	ATT1, ATT2, ATT3	3	.710
Intention Towards Use (INT)	INT1, INT2, INT3	3	.707
Trust (T)	T1, T2, T3, T4, T5	5	.836
Self –Efficacy (SE)	SE1, SE2, SE3, SE4	4	.658
	SE3, SE4	**2**	**.753**
Facilitating Conditions (FC)	FC1, FC2, FC3, FC4	4	.770
Security Risk (SR)	SR1REV, SR2REV, SR3REV	3	.774
	SR2REV, SR3REV	**2**	**.788**
Performance Risk (PR)	PR1REV, PR2REV, PR3REV	3	.772
Financial Risk (FR)	FR1REV, FR2REV, FR3REV	3	.831
Social Risk (SOR)	SOR1REV, SOR2REV	2	.694
Time Risk (TR)	TR1REV, TR2REV	2	.635

Table 10. Reliability Analysis

From the Cronbach alpha calculation, it can be found that the reliability of Self-Efficacy increased to .753 while deleting two items SE1 and SE2. They were dropped for the best result. Similarly for the security risk also if deleted the one item (SR1REV) the Cronbach alpha is increased. Thus this item also deleted for further analysis. And other remaining

constructs fulfill the condition of maintaining minimum alpha of 0.6 which is appropriate for the further analysis.

Nunnally (1967, cited in Tan and Teo (2000)) suggests that a minimum Cronbach alpha of 0.6 suffices for early stages of research. As the Cronbach's alphas range from 0.635 to 0.836, all the constructs were deemed to have enough reliability to go further analysis.

3.8.2 Validity

"Validity is concerned with whether the findings are really about what they appear to be about" Saunders et al. (2012, p. 157). Validity is always more concerned with the intention of the study and measure. It refers to the relationship between the construct and its indicators.

According to Wilson (2014), researchers assess the validity in different ways like internal and external validity, and internal validity is further divided into two approaches as content validity and construct validity. Similarly Zikmund et al. (2012) specifies four different approaches to establishing validity: face validity, content validity, criterion validity, and construct validity. Face validity is concerned with concern the extent to which an instrument measures what it is supposed to measure. In the same way, content validity refers to the degree of coverage of the whole subject of study. Zikmund et al. (2012) define the different component of validity as follow:

Validity Component	Definition
validity	The accuracy of a measure or the extent to which a score truthfully represents a concept.
construct validity	Exists when a measure reliably measures and truthfully represents a unique concept; consists of several components including face validity, content validity, criterion validity, convergent validity, and discriminant validity.
face validity	A scale's content logically appears to reflect what was intended to be measured.
content validity	The degree that a measure covers the breadth of the domain of interest.
criterion validity	The ability of a measure to correlate with other standard measures of similar constructs or established criteria.
convergent validity	Concepts that should be related to one another are in fact related; highly reliable scales contain convergent validity.
discriminant validity	Represents how unique or distinct is a measure; a scale should not correlate too highly with a measure of a different construct.

Table 11. Components of Validity

3.8.3 Factor Analysis

Factor analysis is a statistical method which is used to describe variability among observed, interrelated variables in terms of lower number of unobserved variables called factors[7]. It means that factor analysis is a statistical approach which is used to analyze the correlations among a large number of variables and use to explain these variable in terms of their factors and unobserved variables. So the factor analysis is also used in data reduction to identify a small number of factors which explains most of the variance that is observed in a large number of variables. Factor analysis and principal component analysis is defined as a technique for identifying groups or clusters of variables (Field, 2013). He further states that this technique has three main uses:

1. To understand the structure of a set of variables.
2. To construct a questionnaire to measure an underlying variable
3. To reduce a data set to a more manageable size while retaining as much of the original information as possible.

In this analysis, Principal component analysis was used for the data reduction and factor analysis purpose. PCA is also the same tool as factor analysis and it is conceptually less complex to use than factor analysis. Conceptually PCA produces the components which are the aggregates of correlated variables.

Factor analysis in this analysis consists of four different parts: preliminary analysis, factor extraction, factor rotation, and reliability.

Preliminary Analysis

To test the validity, convergent and discriminant validity of the construct was analyzed and for the analysis purpose factor analysis was used. Tan and Teo (2000) state that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) is computed to determine the suitability of using factor analysis. And they further specify that the KMOMSA values should be greater than 0.5. In the same way, the values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are excellent.

[7] https://en.wikipedia.org/wiki/Factor_analysis (Accessed on 16 July 2015)

Similarly, Field (2013) states that, to ensure a good factor analysis, variables should be correlated to some extent, but not be perfectly correlated. Pallant (2013) further recommend that several correlations should be at least above 0.3. So from the analysis, the result fulfills the both condition to go for further analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.782
Bartlett's Test of Sphericity	Approx. Chi-Square	2374.625
	df	435
	Sig.	.000

Table 12. KMO and Bartlett's Test

For this study, the MSA was found to be 0.782, which shows further analysis using factor analysis was deemed appropriate. Tan and Teo (2007) citing Hair et al. (1992) suggested that for the factor analysis variable with loading greater than 0.3 were considered significant, greater than 0.4 more important and a value greater than 0.5 were very significant.

Thus, the test from the preliminary analysis concludes that all the variables provide the satisfactory characteristics in order to conduct factor analysis.

Factor Extraction

Factor extraction involves technique for determining the smallest number of factors that can be used to best describe the interrelationships (Correlation) among the set of variables (Pallant, 2013). Many variables were used while conducting data collection and every variable was not equally important for the analysis. So only certain and important variables were retained for the further analysis. So, the factor extraction determines the possible number of factors (Components) which best describe the presence of all variables. So, to identify how many factors to extract, there are different approaches used in PCA. The one most common and used approach is Kaiser's criterion or the eigenvalue rule. Kaiser (1960, cited in Field (2013)) state that one common and widely used approach is retaining all the factors with eigenvalues greater than one (1). They further explain that this approach is based on the idea that the eigenvalues represent the amount of variation explained by a factor and that an eigenvalue of 1 represents a substantial amount of variation.

For this study, three rounds of factor analysis using Varimax rotation and Principal Component Analysis factor extraction method was used. To include the construct in the factor, the value of factor loading plays a very important role. The factor loading describes how the factor explains a variable. The value of factor loading ranges from -1 to +1, and Loadings close to -1. 1 represents that the factor strongly affects the variable. Loadings close to zero describe that the factor has a weak effect on the variable. Hair et al. (1992, cited in Tan and Teo (2000)) state that variables with loading greater than 0.3 were considered significant, loading greater than 0.4 more important and loading 0.5 or greater were very important. For this study, the general criteria were to accept items with the loading of 0.5 or higher.

Factor Rotation and Data Interpretation

As I have already mentioned, Varimax rotation and PCA method were used for the factor analysis. The factor rotation presents the components matrix which is a matrix of the factor loading for each variable onto each factor (Field, 2013). Generally while doing factor analysis, many variables have high loading in some factors and low loading on some other factors which make interpretation quite difficult, so a technique factor rotation is used to discriminate between factors. Field (2013, p. 642) argues that "if a factor is a classification axis along which variables can be plotted, then factor rotation effectively rotates these factor axes such that variables are loaded maximally to only one factor".

Generally, two types of rotation can be done and used, one is orthogonal rotation and the other is an oblique rotation. The core difference between these two rotations is that orthogonal rotation assumes that all the factors are not correlated (independent) whereas oblique rotation assumes that factors are correlated. Field (2013) argues that choosing the good rotation method makes the interpreting easier. Varimax is one of the methods of orthogonal rotation and is a mostly and widely used method because it creates more interpretable clusters of factors by maximizing dispersion of loadings between factors. And Varimax is good for the simple factor analysis and provides the easier way to interpreting the factors. Thus, in this analysis Varimax method was used for the factor rotation.

As explained by (utexas) [8] factor loading with 0.4 or higher in the rotated matrix only included for the analysis. And every variable should have substantial loading on one and only one factor. If a variable has a loading in more than one factor, then such variable is termed as the complex variable, which means that the variable has a relationship with two or more derived factors which makes the interpretation quite complex. So to handle these complex variables either ignore the complexity and treat as a normal variable with higher loading factor or remove the variable from the analysis. Similarly (Analysis) states that every component should have minimum 3 items/variables loaded and every item should have a loading minimum of 0.4. And further specifies that if one item is loaded in two different components (factors) and if the difference between the loading is more than or equal to 0.2 then that variable loading is acceptable.

In this analysis, a total of seven factors with eigenvalues greater than 1 were identified and extracted, and these factors explained 61% (60.778%) of the total variance.

The following table shows the final round rotated component matrix with seven factors.

[8]http://www.utexas.edu/courses/schwab/sw388r7/Tutorials/PrincipalComponentsAnalysisintheLiterature_doc_html/034_Analysis_of_the_Factor_Loadings.html

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
T3	**.786**	.055	.033	.102	.024	.106	.098
T5	**.778**	.121	.127	.083	.061	.069	.109
T2	**.758**	-.001	.172	.086	.005	-.059	.205
T4	**.749**	.061	.015	.106	.033	.193	-.053
T1	**.680**	.040	.219	.023	.028	.045	.093
FC4	.058	**.760**	-.036	.054	-.002	.018	.061
FC2	.077	**.738**	.092	.149	.060	-.046	.264
FC1	-.071	**.727**	.118	.159	.084	.081	-.081
SE3	.074	**.714**	.130	-.036	-.188	.070	.124
SE4	.146	**.693**	.122	-.041	-.038	-.055	.253
INT2	.091	.134	**.764**	-.025	.060	-.051	.083
INT3	.162	.038	**.677**	.247	.045	.034	.020
INT1	.014	-.032	**.665**	.198	.194	.116	.130
ATT2	.228	.291	**.635**	.151	.013	-.031	.016
ATT3	.120	.055	**.628**	.260	-.052	-.092	.062
PU2	-.008	.078	.119	**.727**	.030	-.117	.131
PU4	.068	.156	.084	**.686**	.084	-.136	.090
PU1	.056	-.074	.143	**.670**	-.009	.239	.172
PU3	.247	.012	.252	**.663**	-.161	.043	-.149
PU5	.133	.111	.216	**.617**	.149	.071	.139
SOR2Rev	.016	-.180	.048	.107	**.799**	.053	.004
SOR1Rev	.055	-.080	.005	.075	**.781**	-.101	-.164
FR2Rev	-.015	.168	.127	-.070	**.720**	.293	-.020
FR3Rev	.095	.066	.081	-.020	**.710**	.334	.070
SR2Rev	.162	.033	-.033	.027	.093	**.838**	-.094
SR3Rev	.108	.052	.049	-.023	.123	**.819**	-.111
PR1Rev	.065	-.051	-.099	.019	.249	**.608**	.361
PEOU2	.090	.081	.137	.163	-.061	.089	**.750**
PEOU5	.241	.284	.162	.087	-.003	-.083	**.667**
PEOU3	.143	.305	.016	.166	-.093	-.096	**.643**
Initial Eigenvalue	**5.987**	**3.264**	**2.475**	**2.277**	**1.593**	**1.416**	**1.220**
% of Variance	**19.958**	**10.881**	**8.249**	**7.591**	**5.311**	**4.721**	**4.066**
Cumulative %	**19.958**	**30.839**	**39.088**	**46.679**	**51.991**	**56.712**	**60.778**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Table 13. Rotated Component Matrix

So in total five round of factor analysis was performed and 7 factors were extracted and which explained 60.77% of the variance. As I have already mentioned in the reliability analysis part, two constructs of self- efficacy (SE1, SE2) and one construct of security risk (SR1REV) were dropped for the better internal reliability of the construct, because drooping these item increased the reliability value of the construct, so were dropped for the further analysis.

The minimum loading acceptable was 0.5, so for the first round of analysis one item of performance risk (PR2REV) was found to be loaded in three different component instead of one component and loaded higher creating its own component, so was dropped for the second round and other further analysis.

During the second round of analysis, one item of time risk (TR1REV) was loaded in two different components and loaded higher creating its own component so dropped for the further analysis. Similarly, one item of Perceived Ease of Use (PEOU1) was loaded in a different component other than its own construct. So this item also dropped for the further analysis. In the same way, one construct of performance risk (PR3REV) was also loaded on two different components with the strong loading. So this also dropped for the further analysis. Similarly one construct of attitude (ATT1) was also loaded on two different component rather than one, so in total 4 items: one from time risk (TR1REV), one from Perceived Ease of Use (PEOU1), one from performance risk (PR3REV) and one from Attitude (ATT1) were dropped for the next round of analysis.

In the third round of analysis, one construct of Facilitating Condition (FC3) was loaded on two different components with very strong loading and was dropped for the next round of analysis. Similarly one component of Financial Risk (FR1REV) was also loaded higher on two different components rather than one component. So, FC3 and FR1REV were dropped for the next round of analysis.

Similarly, during the fourth round of analysis, one construct of Perceived Ease of Use (PEOU4) was found loaded low loading and was dropped for the further analysis, and one construct of time risk (TR2REV), if dropped, increased the variance the model explained so dropped for the better result.

So from the above analysis it can be found that in total seven factors were extracted and explained 61%(60.77) variance in the model.

The items measuring Self-Efficacy (SE3 & SE4) and Facilitating Condition (FC1, FC2 & FC4) load together in the component 2, which may be the reason that if they have some supporting conditions available, then the confidence level to use the internet banking increases, such as if some people are there to assist them, or if there are all the resources available to use the internet banking then their self-confidence level will increase to use the internet banking.

Similarly, items measuring attitude towards use (ATT2 & ATT3) and Intention to use (INT1, INT2 & INT3) load together, and the reason could be that attitude forms the intention and vice versa. If customers have a positive attitude to use internet banking, then they intend to use internet banking. So attitudes form the intention to use the internet banking.

In the same way, Financial Risk (FR2REV & FR3REV) and Social risk (SOR1REV & SOR2REV) load together, and the reason may be that the financial issue is the form of the social issue in the country like Nepal. Because customers think everything from the society's perspective too, and they think that if there is something wrong with the internet banking and if I lose my money, then people will think less for me, my social status will lose, so the financial issue is interrelated with the social issue.

3.8.4 Reliability of Construct

The Cronbach alpha was already calculated for the internal reliability before conducting the factor analysis, and while doing factor analysis several variables were dropped because of the low loading and some cross loading issue. So the Cronbach alpha of the remaining construct shows the marginal changes from the value before and after. And the minimum alpha suggested is 0.6.

The alpha value of Perceived Ease of Use (PEOU) of remaining 3 items decreased from .756 to .707, similarly attitude (ATT) with two variables decreased from .710 to .669, Self-Efficacy with 2 items increased from .658 to 0.753, and security risk with two items increased from 0.774 to 0.788. And Financial Risk with remaining 2 items decreased from .831 to .748. And still all the constructs fulfill the minimum requirement of 0.6, so were appropriate for the further analysis.

Construct	**Before Factor Analysis**		**After Factor Analysis**	
	No. of Items	**Cronbach Alpha**	**No. of Items**	**Cronbach Alpha**
Perceived Usefulness (PU)	5	.757	5	.757
Perceived Ease of Use (PEOU)	5	.756	**3 (2,3,5)**	**.707**
Attitude Towards Behavior (ATT)	3	.710	**2 (2,3)**	**.669**
Intention Towards Use (INT)	3	.707	3	.707
Trust (T)	5	.836	5	.836
Self –Efficacy (SE)	4	.658	**2 (3,4)**	**.753**
Facilitating Conditions (FC)	4	.770	4	.770
Security Risk (SR)	3	.774	**2 (2,3)**	**.788**
Financial Risk (FR)	3	.831	2 (2,3)	.748
Social Risk (SOR)	2	.694	2	.694

Table 14. Reliability Analysis Comparision

Similarly, the Cronbach alpha of each factor also should be calculated to see the reliability of all the construct in each factor. And all the factors should fulfill the requirement of minimum of alpha 0.6.

Factor	Name	Construct	No. of Items	Cronbach Alpha
1	Trust	T1, T2, T3, T4, T5	5	.836
2	Facilitating Condition and Self-Efficacy	SE3, SE4, FC1, FC2, FC4	5	.808
3	Social and Financial Risk	SOR1REV, SOR2REV, FR1REV, FR2REV	4	.783
4	AttitudeIntention	ATT2, ATT3, INT1, INT2, INT3	5	.767
5	Perceived Usefulness	PU1, PU2, PU3, PU4, PU5	5	.757
6	Security Risk	SR2REV, SR3REV, PR1REV	3	.738
		SR2REV, SR3REV	2	.788
7	Perceived Ease of Use	PEOU2, PEOU3, PEOU5	3	.707

Table 15. Reliability Analysis of Construct

The Cronbach alpha of all components were good and in the component 6, there were three constructs loaded, two from Security Risk (SR2REV & SR3REV) and one from performance risk (PR1REV), while dropping the performance risk item, the reliability score of component 6 increased from .738 to .788, so PR1REV was dropped for the further analysis. As the Cronbach alpha of each factor ranges from 0.707 to 0.836, all the construct have adequate reliability for the next stage of analysis.

From the factor analysis, it was found that, all the constructs which have higher loading were retained for the further analysis, and two variables- Time risk and one performance risk- were dropped from the factor analysis for the further analysis. This is because all the items under time and performance risk were loaded either creating separate component or loaded with another construct in more than two or three components, which means that these items share the similar characteristic as the other items, and they are correlated with more than one component at the same time. It means that they were not measured as separate attributes and have no contribution with the dependent variables. So there is no any significant impact on the intention to use internet banking and time and performance risk. So, now for the further analysis, all the items of time risk and performance risk were dropped and only remaining items were included for the further analysis.

3.9 Test of Multicollinearity and Heteroscedasticity

Before regression analysis, the data were tested for heteroscedasticity and multicollinearity. Tan and Teo (2000) state that heteroscedasticity refers to the occurrence of unequal variances while multicollinearity refers to high correlations among the independent variables.

For the good analysis of the data and to get the good regression analysis output, regression model assumes to have a constant variance of residuals, where Residuals are the differences between the obtained and the predicted dependent variable scores. To test the heteroscedasticity needs to look for the plot of standardized residuals against standardized predicted value. The scatter diagram should show random dot, not the dot in some order. There should not be any systematic pattern of dots to make the data free from heteroscedasticity.

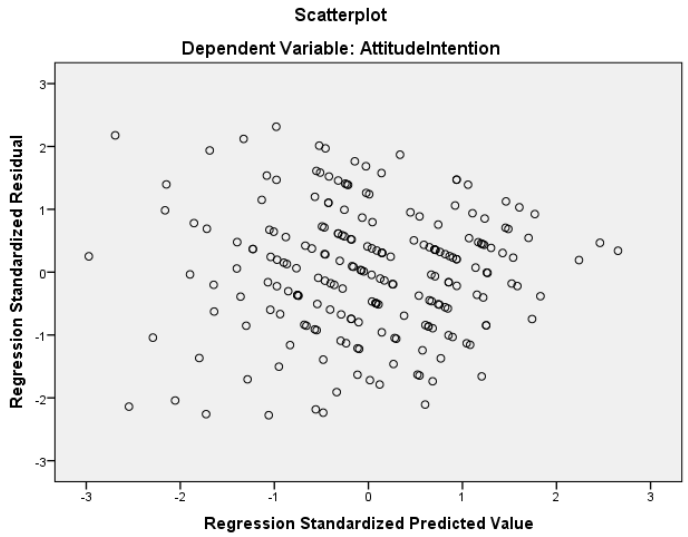


Figure 10. Scatterplot

In this case, the scatterplot shows a random dispersion. So, one can conclude that there is no heteroscedasticity that may cause misleading conclusion while doing hypothesis testing. Along with this scatter diagram it is also important to check the normality and integrity of the residuals, where normality refers that the residuals should be normally distributed about the predicted dependent variable scores and integrity refers that the residuals should have a straight-line relationship with predicted dependent variables scores (Pallant, 2013). To check the normality of the residuals, the histogram, and normal probability plot were used. And in both cases the figure shows that residuals had been normally distributed.

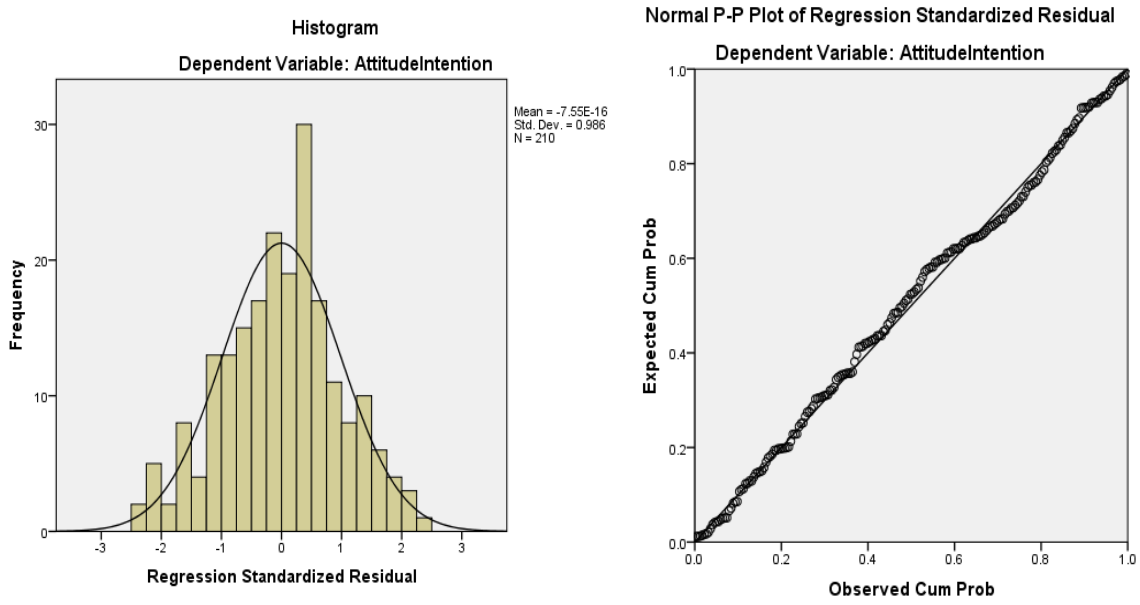


Figure 11. Histogram and PP Graph

In the same way, to get the good result of regression analysis, one needs to check the excessive correlation among the variables in the model. Tan and Teo (2000) citing Kleinbaum et al. (1988) suggst that to test multicollinearity, the Variance inflation Factor (VIF) was used. He further suggests that as a rule of thumb, if the VIF of a variable exceeds 10, then that variable is said to be highly collinear and there is a problem of multicollinearity. Field (2013) further states that VIF indicates that whether a predictor has a strong linear relationship with the other predictors. He further specifies different assumption of VIF for multicollinearity as follows:

a) If the VIF is greater than 10 then there is an issue of concern.
b) If the average VIF is substantially greater than 1 then the regression may be biased.

Variables	**VIF Value**
Perceived Usefulness	1.323
Trust	1.286
Perceived Ease of Use	1.443
Security Risk	1.223
Facilitating Condition	1.594
Self-Efficacy	1.652
Social Risk	1.620
Financial Risk	1.725
Attitude	1.339
Average	**1.467**

Table 16. VIF Calculation

For this current model, the VIF values are all well below 10 and average VIF is close to 1 and thus this confirms that collinearity is not a problem in this analysis.

4 Finding, Analysis and Interpretation

4.1 Introduction

This chapter presents the findings of the study as well as the data analysis and presentation with interpretation. For the analysis part, correlation and regression analysis was used. The first section of this chapter deals with the data, findings and interpretation of demographic and personal information and the second part deal with the data analysis of core part, the perception of customers towards the internet banking in Nepal based on different constructs and scales. In total, data from 210 respondents were included in the analysis.

4.2 Demographic profile (Personal Information)

The demographic profile of the respondents includes gender, age, highest education qualification, profession, income, the internet and internet banking use, and prefers platform to use.

4.2.1 Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	142	67.6	67.6	67.6
	Female	68	32.4	32.4	100.0
	Total	210	100.0	100.0	

Table 17. Demographic Profile (Gender)

Table 17 presents the gender of the participants. From the result, we can conclude that the respondents for this study were made up 67.6% males and 32.4% females. This study was conducted from the sample from the college and university level students and this result shows that while studying and adopting new technologies as compared to females, males dominate.

4.2.2 Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 20 years	23	11.0	11.0	11.0
	20 - 30 years	173	82.4	82.4	93.3
	30 - 40 years	14	6.7	6.7	100.0
	Total	210	100.0	100.0	

Table 18. Demographic Profile (Age)

In table 18, we can see that the majority of the respondents were in the 20-30 years of age comprising 82.4 %, followed by less than 20 years 11.0% and 30-40 years 6.7%. Since the target sample for this study was college and university students, the result reveals that 82.4% participants were between the ages 20 to 30 years. At the same time, this also implies that the majority of the bank customers are more in the dynamic and young age who want to use most of the services of the bank such as internet banking, mobile banking and so on.

4.2.3 Higher Education Qualification

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Schooling	3	1.4	1.4	1.4
	High School	28	13.3	13.3	14.8
	Bachelor	161	76.7	76.7	91.4
	Master or More	18	8.6	8.6	100.0
	Total	210	100.0	100.0	

Table 19. Demographic Profile (Education)

This analysis reveals that the majority of the respondents were with bachelor degree totaling 76.7% followed by high school 13.3%, master degree or more 8.6% and schooling 1.4%. The data presented in table 19 show that most of the bank customers can understand the functioning of almost all services provide by the bank.

4.2.4 Profession

Profession

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	182	86.7	86.7	86.7
	Government Employee	1	.5	.5	87.1
	Private Sector Employee	15	7.1	7.1	94.3
	Self Employed	12	5.7	5.7	100.0
	Total	210	100.0	100.0	

Table 20. Demographic Profile (Profession)

The majority of the respondents were students comprising 86.7 % followed by the private sector employee 7.1%, self-employed 5.7% and government employee 0.5%.

4.2.5 Monthly Income

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 10,000 NPR	24	11.4	11.4	11.4
	10,000 to 20,000 NPR	15	7.1	7.1	18.6
	20,000 to 30,000 NPR	6	2.9	2.9	21.4
	30,000 to 40,000 NPR	9	4.3	4.3	25.7
	40,000 to 50,000 NPR	2	1.0	1.0	26.7
	More than 50,000 NPR	5	2.4	2.4	29.0
	Not Applicable	149	71.0	71.0	100.0
	Total	210	100.0	100.0	

Table 21. Demographic Profile (Monthly Income)

As the majority of the respondents were students, the income is not applicable to 71% followed by low income group less than 10,000 NPR 11.4%, 7.1% were earning between 10,000 to 20,000 NPR, similarly 4.3 % were earning 30,000 to 40,000 and only 2.4% earn more than 50,000 NPR. This data also represents that while studying, most of the students do not work in Nepal and so there is no any income for the most of the students.

4.2.6 Period of Internet use

Internet Use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	12	5.7	5.7	5.7
	1 to 2 year	24	11.4	11.4	17.1
	More than 2 years	152	72.4	72.4	89.5
	Not Applicable	22	10.5	10.5	100.0
	Total	210	100.0	100.0	

Table 22. Demographic Profile (Internet Use)

The majority of the respondents were using the internet for more than 2 years, totaling 72.4%, followed by 1 to 2 year 11.4%, less than 1 year 5.7%, and not applicable 10.5%.

This implies that most of the customers are familiar with the internet and they are using it. Besides this table 22 presents the trend of internet use, as many of the groups are just starting to use the internet and that 10.5% have no internet access even today. This shows the trend of internet use in Nepal, which is still in the growing phase.

4.2.7 Period of Internet Banking (IB) use

IB Use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	47	22.4	22.4	22.4
	1 to 2 year	43	20.5	20.5	42.9
	more than 2 years	25	11.9	11.9	54.8
	not applicable	95	45.2	45.2	100.0
	Total	210	100.0	100.0	

Table 23. Demographic Profile (IB Use)

The majority of the respondents were starting to use the internet banking now. In the above table 23, it is shown that 22.4% respondents are just starting to use internet banking, followed by 20.5% who have been using internet banking for 1 year and 11.9 % respondents have been using internet banking for more than 2 years. However, a large majority of 45.2% respondents have no access to internet banking.

4.2.8 Platform you prefer

Platform

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mobile banking	105	50.0	50.0	50.0
	Internet banking	105	50.0	50.0	100.0
	Total	210	100.0	100.0	

Table 24. Demographic Profile (Platform)

This is the opinion from the respondents that 50% of the respondents prefer mobile banking and remaining 50% prefer internet banking.

Thus from the demographic information it can be concluded that the majority of the respondents were between the ages 20 to 30 years, hold a bachelor degree, with no or low-income group, and are familiar with the internet and prefer the internet and mobile banking platform to use.

4.3 Relationship between the variables and Hypothesis Testing

4.3.1 Correlation Analysis

Pearson Correlations										
	Perceived Usefulness	Intention	Trust	Perceived Ease of Use	Attitude	Security Risk	Financial Risk	Social Risk	Facilitating Condition	Self-Efficacy
Perceived Usefulness	1									
Intention	**.407****	1								
Trust	**.283****	**.289****	1							
Perceived Ease of Use	**.315****	**.230****	**.323****	1						
Attitude	**.414****	**.519****	**.305****	**.311****	1					
Security Risk	.035	.054	**.213****	-.058	.013	1				
Financial Risk	.050	**.197****	**.141***	.018	.062	**.364****	1			
Social Risk	.091	**.137***	.050	**-.130***	.043	**.149***	**.551****	1		
Facilitating Condition	**.214****	**.193****	**.143***	**.374****	**.255****	.048	**.136***	-.071	1	
Self-Efficacy	**.127***	**.174****	**.197****	**.386****	**.247****	.014	.045	**-.213****	**.563****	1
**. Correlation is significant at the 0.01 level (1-tailed).										
*. Correlation is significant at the 0.05 level (1-tailed).										

Table 25. Correlation Analysis

From the correlation matrix above, preliminary hypothesis test can be performed. The result from the correlation matrix shows that there is a maximum positive correlation among the predictors and variables. In this model, the main dependent variables are intention and attitude towards using internet banking. So the analysis of these two variables and their relationship to other variables shows many positive relationships. The result shows that there is a very good and strong relationship (r=0.563) with Self-Efficacy and Facilitating Condition. The reason may be that Self-Efficacy and Facilitating Condition are closely related because Facilitating Condition helps to improve the Self-Efficacy. In the same, way there is a strong positive relationship between Financial Risk and social risk (r=0.551). Similarly, the attitude itself is a one predictor of intention shows the very good and strong positive relationship (r=0.519).

Relationship between Intention and other Variable

In this study, Intention is the main dependent variable used for the analysis. The correlation matrix presented in the table 25 reveals that, most of the independent variables have a positive and significant relationship with Intentions. The relationship between Trust and Intentions shows the positive and significant relationship ($r = 0.289$, $N=210$, $P<0.01$). Similarly, there was a strong positive and significant relationship between Intention and Attitude ($r = 0.519$, $N=210$, $P<0.01$). In the same way, Intention has positive and significant relationship with Perceived Usefulness ($r = 0.407$, $N=210$, $P<0.01$), Facilitating Condition ($r = 0.193$, $N=210$, $P<0.01$), Financial Risk ($r = 0.197$, $N=210$, $P<0.01$), social risk ($r = 0.137$, $N=210$, $P<0.05$), PEOU ($r = 0.230$, $N=210$, $P<0.01$), and Self-Efficacy ($r = 0.174$, $N=210$, $P<0.01$). This implies that customer's intention is formed by different attitudinal and other factors listed above. On the other hand, Intention has some weak positive relationship but not significant with security risk, with the following parameters ($r =0.054$). It represents that the variable Intention is not dependent with security risk factors.

Relationship between Attitude and other variables

Attitude is another dependent variable in this model, and the correlation presented in the table 25 shows the positive and significant relationship with most of the variables. The variables Perceived Usefulness, Trust, Facilitating Condition, Perceived Ease of Use, and Self-Efficacy were all positively related to Attitude with the following parameter ($r =0.414$, $N=210$, $P<0.01$), ($r =0.305$, $N=210$, $P<0.01$), ($r =0.255$, $N=210$, $P<0.01$), ($r =0.311$, $N=210$, $P<0.01$)

and (r =0.247, N=210, P<0.01) respectively. These results imply that with the usefulness, Trust towards the bank and its services, ease of use makes the customer's attitude positive to use the internet banking. Furthermore, Financial Risk, social risk, and security risk have a weak positive relationship but not significant with the attitudes towards use. It shows that risk has not any impact on the consumers' mind if they got the service which is useful and ease of use.

Relationship between Perceived Usefulness, Perceived Ease of Use and Trust

The result reveals that Trust and Perceived Ease of Use are positively related to Perceived Usefulness with the following parameter (r =0.283, N=210, P<0.01), (r =0.315, N=210, P<0.01) respectively. This result implies that Perceived Ease of Use and Trust make them feel that something service is useful for them. On the other hand if the internet banking is useful, ease of use and Trustful then it affects the perception of internet banking adoption.

Relationship between Perceived Ease of Use, Self-Efficacy and Facilitating Condition

The result reveals that Facilitating Condition and Self-Efficacy are positively and significantly related to Perceived Ease of Use with the following parameter (r =0.374, N=210, P<0.01) and (r =0.386, N=210, P<0.01) respectively. These results imply that Self-Efficacy and Facilitating Condition make them feel easy to use the banking services. It means that customers are ready to use internet banking and they feel easy to use if they got some guideline and they have self-confidence.

4.3.2 Multiple Linear Regression Analysis

Total Eighteen (18) hypotheses were formulated for the study, and multiple linear regression analysis was used to test the hypothesis by regressing the independent variable Perceived Usefulness, Perceived Ease of Use, Trust, Self-Efficacy, Facilitating Condition, Security Risk, Performance Risk, Financial Risk, Social Risk, and Time Risk on intention and Attitude as a dependent variable. The result of the regression analysis is as follows:

Result of Multiple Linear Regression analysis

Factor	Hypothesis	Variable	Beta	T-Statistic	P-Value
Intention	**H2**	**Perceived Usefulness**	**.211**	**3.340**	**.001**
	H1	**Attitude**	**.394**	**6.178**	**.000**
	H10	Trust	.094	1.524	.129
	H16a	Security Risk	-.038	-.610	.543
	H15a	**Financial Risk**	**.162**	**2.661**	**.008**
Attitude	**H3**	**Perceived Usefulness**	**.315**	**4.710**	**.000**
	H4	**Perceived Ease of Use**	**.158**	**2.283**	**.023**
	H9	**Trust**	**.169**	**2.469**	**.014**
	H16	Security Risk	-.036	-.525	.600
	H15	Financial Risk	.022	.272	.786
	H13	Social Risk	.020	.261	.794
Perceived Usefulness	**H5**	**Perceived Ease of Use**	**.250**	**3.658**	**.000**
	H11a	**Trust**	**.203**	**2.969**	**.003**
Perceived Ease of Use	**H8**	**Facilitating Condition**	**.229**	**3.013**	**.003**
	H7	**Self-Efficacy**	**.257**	**3.391**	**.001**
Trust	**H6**	**Perceived Ease of Use**	**.323**	**4.914**	**.000**
Perceived Risk	**H11**	**Trust**	**.175**	**2.557**	**.011**

Table 26. Multiple Regression Analysis

The result reveals that the Intention to use the internet banking is predicted by Attitude (β=0.394, t=6.178, p=0.001), Perceived Usefulness (β=0.211, t=3.340, p=0.001), Financial Risk (β=0.162, t=2.661, p=0.008). Similarly, Attitude towards internet banking is predicted by Perceived Usefulness (β=0.315, t=4.710, p=0.001), Perceived Ease of Use (β=0.158, t=2.283, p=0.023), and Trust (β=0.169, t=2.469, p=0.014). In the same way, Perceived Usefulness is predicted by Perceived Ease of Use (β=0.250, t=3.658, p=0.000), and Trust (β=0.203, t=2.969, p=0.003). Perceived Ease of Use is predicted by Facilitating Condition (β=0.229, t=3.013, p=0.003) and Self-Efficacy (β=0.257, t=3.391, p=0.001). Trust is predicted by Perceived Ease of Use (β=0.323, t=4.914, p=0.000) and Perceived risk is predicted by Trust (β=0.175, t=2.557, p=0.011).

Explaining Intention Variable

The intention to use internet banking is jointly predicted by the variables Attitude (β=0.394, t=6.178, p=0.001), Perceived Usefulness (β=0.211, t=3.340, p=0.001), and Financial Risk (β=0.162, t=2.661, p=0.008). And these variables explain the 34.8 % variance in the intention to use variables (R^2 = 0.348). This is a quite good explanatory power of the variable towards the intention to use of internet banking. From the above analysis, it can be found that Attitude has the highest effect on Intention, means to form the intention to use internet banking, Attitude plays a very significant role. Which strongly support the **Hypothesis 1** as attitude has a positive and significant effect on intention to use the internet banking. In other words, if the customers have a positive attitude towards internet banking, they are more intent to use this service. In the same way, after attitude towards use, Perceived Usefulness has a significant impact on intention to use the internet banking, which support the **Hypothesis 2**. This is more consistent with the previous research of Taylor and Todd (1995), who found that there is a significant relationship between Perceived Usefulness and intention.

Similarly, the relationship between Intention and Financial Risk is also found the significant relationship thereby supporting **Hypothesis 15a** (β=0.162) which shows that there is a negative relationship between the Financial Risk and Intention to use the internet banking. Which means that because of financial risk people are unwilling to use the internet banking. Here the financial risk includes the chances of loss of money while doing online transactions.

Explaining Attitude Variable

Attitude is predicted by Perceived Usefulness (β=0.315, t=4.710, p=0.001), Perceived Ease of Use (β=0.158, t=2.283, p=0.023), and Trust (β=0.169, t=2.469, p=0.014). These figures show that Perceived Usefulness has the highest impact on Attitude (β=0.315) followed by Trust (β=0.169) and Perceived Ease of Use (β=0.158) supporting **Hypothesis 3, Hypothesis 9 and Hypothesis 4**. In total 23.3% variance on attitude towards use is explained by these three variables (R^2=0.233). The analysis also shows that there is no any significant impact of security risk, Financial Risk, and Social risk. So **Hypothesis 13, Hypothesis 15, and hypothesis 16** are not supported.

The reason of these outputs could be the impact of usefulness, and Trust towards the bank. Once people feel usefulness, and easy to use then this increases the positive attitude towards the use of internet banking, which ultimately leads to easily acceptance of internet banking.

In the same way, once people feel the bank is Trustworthy which means there is not risk involved or they just ignore the risk because of the usefulness and Trust towards the bank.

Explaining Perceived Usefulness Variables

From the above analysis, it can be concluded that, Perceived Usefulness is jointly predicted by Perceived Ease of Use (β=0.250, t=3.658, p=0.000), and Trust (β=0.203, t=2.969, p=0.003), thereby supporting **Hypothesis H15 and Hypothesis H11a** respectively. This result is consistent with the previous research of Todd and Taylor (1995) and Trust and TAM model in Gefen et al. (2003) and suggests that there is a significant relationship between Perceived Usefulness and Perceived Ease of Use.

Explaining Perceived Ease of Use

From the above output, it can be seen that Perceived Ease of Use was predicted jointly by Facilitating Condition (β=0.229, t=3.013, p=0.003) and Self-Efficacy (β=0.257, t=3.391, p=0.001), thereby supporting the **Hypothesis 8** and **Hypothesis 7** Respectively. The Self-Efficacy has the higher impact on ease of use as compare to Facilitating Condition, it's because the self-confidence to use internet banking plays important role providing some guideline. It means that people will use internet banking more if they have the self-confidence to use rather than some other Facilitating Condition. As I have already mentioned in the literature part that two main determinants of Perceived Ease of Use are Facilitating condition and Self-Efficacy, and from the above results it can be concluded that these both factors have a high impact on Perceived Ease of use. These results show that people's self-confidence is more important than some other facilitating condition, where Self-Efficacy defines self-confidence to use the system and Facilitating condition means other supportive guidelines and people are available to help while using the system. And according to this results show that people's Self-Efficacy has the higher impact on Perceived Ease of use than Facilitating Condition.

Trust

Trust is predicted by Perceived Ease of Use (β=0.323, t=4.914, p=0.000) and Perceived risk is predicted by Trust (β=0.175, t=2.557, p=0.011), thereby supporting the **Hypothesis H6** and **Hypothesis H11** respectively. It shows that Perceived Ease of Use has a high impact on

Trust, could be the reason that if people feel some technology easy to use and which increases the self-confidence to use the system, leads to Trust to that system. And the perceived risk and Trust has a negative significant relationship. Which means that when people Trust to the bank and its system, then the perceived risk will be reduced.

From the above analysis, we can conclude that Trust is one of the important factors of internet banking adoption, which has the high impact on Perceived Usefulness, attitude towards use and perceived risk.

Summary of hypothesis and results

S. No.	Hypothesis	Remarks
Hypothesis 1	Consumer attitude positively influences their intention to use internet banking.	**Supported**
Hypothesis 2	Perceived Usefulness positively influences the intention to use internet banking.	**Supported**
Hypothesis 3	Perceived Usefulness positively influences the consumer attitude to use internet banking.	**Supported**
Hypothesis 4	Perceived Ease of positively influences attitude to use internet banking.	**Supported**
Hypothesis 5	Perceived Ease of Use positively influences Perceived Usefulness to use internet banking.	**Supported**
Hypothesis 6	Perceived Ease of Use positively influences the Trust in using internet banking.	**Supported**
Hypothesis 7	Self-Efficacy has a positive impact on Perceived Ease of Use.	**Supported**
Hypothesis 8	Facilitating Conditions positively influence the Perceived Ease of Use.	**Supported**
Hypothesis 9	Trust positively influence consumer attitude to use internet banking.	**Supported**
Hypothesis 10	Trust positively influences the intention to use internet banking.	Not Supported
Hypothesis 11	Consumer Trust negatively influences the perceived risk to use the internet banking.	**Supported**
Hypothesis 11a	Trust has a positive impact on Perceived Usefulness to use internet banking.	**Supported**
Hypothesis 12	Performance risk negatively influence attitude to use internet banking.	Not Supported
Hypothesis 13	Social risk negatively influences the attitudes towards the use of internet banking.	Not Supported
Hypothesis 14	Time risk negatively influences attitudes towards the use of internet banking.	Not Supported
Hypothesis 15	Financial Risk negatively influences attitude towards the use of internet banking.	Not Supported

Hypothesis 15a	Financial Risk negatively influences the intention to use internet banking.	**Supported**
Hypothesis 16	Security risk negatively influences attitude towards the use of internet banking.	Not Supported
Hypothesis 16a	Security risk negatively influences intention to use internet banking.	Not Supported

Table 27 Summary of Hypothesis Test and Result

5 Conclusion

5.1 Discussion

The findings show that intention to adopt internet banking services can be predicted by different attitudinal and other factors such as Usefulness. And at the same time consumer's attitudinal factors are predicted by other means such as Perceived Usefulness, Perceived Ease of use, and Trust. The finding shows that consumer Intention is mostly predicted by the Attitude and Usefulness of the system. The possible reason could be that once a consumer feels the system is really useful for him for the day to day life or to make the life easier, then his attitude towards that system becomes positive and which ultimately leads to adopting the system easily. For the internet banking case also, it is important that each and every consumer should feel that the system is useful for them, which is already backed by the services provided by the banks to the consumer, banks impression toward the consumer's point of view and trust.

The study shows the significant positive relationship between consumer attitude and Trust, Perceived Usefulness and ease of use. The possible reason could be that when the consumers believe that internet banking is useful, safe, efficient, easy to use and fulfill the commitments and promises it assumes, they are likely to be bound to Trust the system of internet banking service. So in the country like Nepal, it is very important that the banking system should provide the ground to believe on to the consumer, which makes consumer more attractive to the banking system. Because Nepal is an underdeveloped country and per capital income is also very low, and to use banking services is not a necessity for the people. All the banking consumers are from the city areas only and in the rural areas still people have no ideas about what is banking and what is the use for it. So, from this study also, it has been found that consumer's attitude is the most important determining factor for the internet banking, and which (attitude) is formed by the usefulness of the system, easiness of the system and trust towards the system, so for the Nepalese perspective the possible reason people are not willing to use the internet banking could be the awareness provided by the banks, people are not convinced with the services provided by the banks, their usefulness and how to operate the system. one example I want to add in the middle, there are so many commercial banks which provides the internet banking services and provides the services to pay the utility payment such as electricity, telephone, water bill to the respective authority and still people who have

a bank account and got all the services provided by the bank, went to the queue to pay the utility payment rather than paying through banks, which is the ground reality of the trust towards the bank and people are not aware with the services.

In the same way, the study shows the ease of use is one of the important factor for the attitude and self-efficacy and facilitating condition are the predictor of ease of use, and there is a significant positive relationship between ease of use and facilitating condition and self-efficacy. This means that ease of use has a direct positive impact on attitude and facilitating condition and self-efficacy also has an indirect impact on forming attitude through ease of use. So these two factors have also a role in determining adoption of internet banking. As I already defined the meaning of facilitating condition and self-efficacy and how it has an impact to ease of use, just want to add here too. Perceived ease of use, which means that how people feel easiness while operating the system, is it user-friendly, easy to operative, interactive, provides some helpful tips or not and so on. In this study, Perceived Ease of Use is used to measure the easiness of the system such as, whether people like the system to use or they feel it is very difficult to use. So when people think and believe the system is easy to operate, they are motivated towards the use of the system and which ultimately leads to the easy implementation of the system.

In the same way, two factors self-efficacy and facilitating condition have also an indirect relationship with attitude through Perceived ease of use. Means that, they are the determining factors of perceived ease of use. Here self-efficacy is defined as the self-confidence to use the system and facilitating condition refers to the available facilities while using the system. These factors mostly represent the human resources and skills to use the system. For example, people with technology background or have IT skills will definitely find the system more easy to operate rather than the people who have less or have no IT or technology background. Which means that self-efficacy means the self-confidence to use the system, how people think themselves that they have the necessary skills to use that system or they will learn it and will use the system. So the people who are more confident will find the system easy to use. And facilitating condition here refers that the other available facilities while using the system, for example, you are interested to use the system and want to use it, but you are looking for someone to help if you got stuck. Or you want some guidelines, tips about how to use the system. So in both case people think the system will be easy to use and which ultimately makes help to form a positive attitude.

On the other hand, there were some risk factors included to measure the negative affect of consumer intention, but the study shows that there is not any significant relationship with the risk factors, only financial risk gives the negative impact to the intention to adopt the internet banking. The reason could be that, people are afraid to use internet banking because of the fear of losing money and couldn't get it back. The study reveals that there is a negative and significant relationship between the perceived risk and trust, means that when the people think and believe that the bank is safe to do an online transaction, ultimately reduces the risk it poses. So this also leads to the conclusion that trust is one of the most important factors for the adoption of internet banking.

So from the analysis we can conclude that the main determinants of adoption of internet banking are different attitudinal factors which include perceived usefulness, perceived ease of use, Trust, and financial risk. In the same way perceived ease of use also determined by self-efficacy and facilitating condition. Financial risk is more important than other risks such as security, performance, time and social.

5.2 Implication of the research

The main purpose of this research is to develop a new model integrating TAM with Trust and perceived risk in a comprehensive manner to test the user acceptance of internet banking. This model uses all the factors of TAM and extends the model by adding some other factor including Trust and different dimension of perceived risk including Security Risk, Performance Risk, Financial Risk, Time risk and Social risk. And this study not only develops the model including Trust but verifies that Trust is one of the important determining factors to adopt the internet banking.

So from the theoretical perspective, this study gives the new dimension to test the consumer's intention extending the original model TAM adding important factors like Trust and perceived risk. It is very important to verify what the consumers exactly want, and what the factors are those make them more doubtful while accepting new technology and services. In the country like Nepal, most of the people feel banking itself is new and they are not used to with the bank and banking services.

From the analysis, it is verified that the most important determining factor while accepting new technology and services is attitude formed by Usefulness, Ease of use, Self-confidence, Supporting condition and Trust. However, Financial Risk is considered more important factor which negatively influences the intention to adopt the intent banking.

This research not only provides the contribution to the theory, but it has some practical implications too. The manager of the bank can get good insight from this report. It is very important to understand consumers before providing any services. If they understand the consumer intention, then it's very easy to apply and get the return from there. From the analysis above, some recommendation can be made for the banks as follows:

1. As the study shows, usefulness, ease of use, Trust are the main determinant factors for the adoption of internet banking, and so the bank should provide the services which are very useful for the consumers, easy to use and Trustworthy.

2. While developing the websites and other applications, the bank should focus on the security, and make the web site and apps easy to use providing different supporting guidelines, and interactive pages. Providing well designed and user-friendly website can attract the consumers.

3. Awareness is the most important thing for the customers. So designing is not everything; they should include some small tips showing how to do the transaction and other services properly, providing different information camps to convince people about the security system so that they can believe the bank.

4. Providing easy access to use the bank services, a different promotional mechanism can attract the consumer.

6 Limitation and further research

This study was conducted to find the factors influencing adoption of internet banking in Nepal. As such there are still more rooms to address for further research.

- With the assumption that in Nepal most of the internet banking users are residing in the city areas and most of the internet banking users are those who have higher education, this study focused on students inside Kathmandu valley, so this study is not sufficient to generalize the result to all.

- This study uses only 210 samples from the students who were studying in bachelor and master level program inside Kathmandu valley, so the result may be different if the sample and coverage become larger.

- In this research, all the analyzes were done through quantitative analysis, so if some use other mechanism such as an interview or some other methods, then there is still room to find the different results.

- In sum, this research provides the ground to do further researches in the internet banking areas, because as far as I find, there is no any research till date which focuses on the particular service of the bank, so this study can be the basis to do the further research in Nepalese banking sector.

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8 Appendix

Questionnaire

Dear Respondents,

This study is about consumer attitude towards internet banking in Nepal. The researcher is a student of The University of Oslo, Norway and this study is in partial fulfillment of the requirements for the degree in MSC Innovation and Entrepreneurship. So I kindly request you to spare a few minute of your busy schedules to fill this questionnaire. Your honest and sincere responses are highly appreciated. Thank you very much for your participation.

Section A

Please select the appropriate responses that best describe your perceptions of Internet Banking. Evaluate each statement and select (Circle or Tick) in the appropriate box on the following scale.

Constructs		**Strongly Disagree (SD)**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree (SA)**
Perceived Usefulness (PU)						
PU1	Using Internet Banking enables me to accomplish my banking activities more quickly.	**1**	**2**	**3**	**4**	**5**
PU2	Using Internet Banking makes me easier to carry out my banking activities.	**1**	**2**	**3**	**4**	**5**
PU3	Using Internet Banking enhances my effectiveness and efficiency in utilizing banking services.	**1**	**2**	**3**	**4**	**5**
PU4	Using Internet Banking improves my performance of banking activities.	**1**	**2**	**3**	**4**	**5**
PU5	Overall, I find Internet Banking is useful and advantageous.	**1**	**2**	**3**	**4**	**5**
Perceived Ease of Use (PEOU)						
PEOU1	Learning to use Internet Banking is easy for me.	**1**	**2**	**3**	**4**	**5**
PEOU2	It is easy to use Internet Banking to accomplish my banking activities.	**1**	**2**	**3**	**4**	**5**
PEOU3	Interaction with Internet Banking is clear and understandable.	**1**	**2**	**3**	**4**	**5**

PEOU4	The Internet Banking site provides helpful guidelines to perform my banking activities.	**1**	**2**	**3**	**4**	**5**
PEOU5	Overall, I find the Internet Banking is easy to use.	**1**	**2**	**3**	**4**	**5**
Attitude Towards Behavior (ATT)						
ATT1	Using Internet Banking is a good idea.	**1**	**2**	**3**	**4**	**5**
ATT2	I like to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
ATT3	It is desirable to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
Intention towards Use (INT)						
INT1	I would use Internet Banking for my banking needs.	**1**	**2**	**3**	**4**	**5**
INT2	I intend to use Internet Banking in near future.	**1**	**2**	**3**	**4**	**5**
INT3	I will recommend others to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
Trust (T)		**SD**	**Disagree**	**Neutral**	**Agree**	**SA**
T1	I believe, the Internet Banking site is trustworthy.	**1**	**2**	**3**	**4**	**5**
T2	I believe, Internet Banking (Bank) keeps its promise and commitments.	**1**	**2**	**3**	**4**	**5**
T3	I believe, my personal information is kept confident while using internet banking.	**1**	**2**	**3**	**4**	**5**
T4	I believe, transactions conducted through internet banking are secure.	**1**	**2**	**3**	**4**	**5**
T5	I trust my bank's online banking site.	**1**	**2**	**3**	**4**	**5**
Self-Efficacy (SE)						
SE1	I have the confidence to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
SE2	I am confident of using Internet Banking if I have only online instruction available.	**1**	**2**	**3**	**4**	**5**
SE3	I don't need help or guideline by other people to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
SE4	I don't feel difficult to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
Facilitating Conditions (FC)						
FC1	I have the resources necessary to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
FC2	I have the knowledge necessary to use Internet Banking.	**1**	**2**	**3**	**4**	**5**
FC3	I have a person available for	**1**	**2**	**3**	**4**	**5**

	assistance while using Internet Banking.					
FC4	I have easy accessibility to use the Internet Banking.	**1**	**2**	**3**	**4**	**5**
Perceived Risk						
Security Risk (SR)						
SR1	I worry about giving my ATM number or Login to Internet Banking site.	**1**	**2**	**3**	**4**	**5**
SR2	I worry about, the Internet Banking system is not secure.	**1**	**2**	**3**	**4**	**5**
SR3	I worry about, I will lose control of my personal detail and others will misuse my data.	**1**	**2**	**3**	**4**	**5**
Performance Risk (PR)						
PR1	Internet banking might not perform well and create problem while doing banking transactions.	**1**	**2**	**3**	**4**	**5**
PR2	Internet Banking servers and site may not perform well and process payment incorrectly.	**1**	**2**	**3**	**4**	**5**
PR3	The security systems built into the internet banking system are not strong enough to protect my account.	**1**	**2**	**3**	**4**	**5**
Financial Risk (FR)		**SD**	**Disagree**	**Neutral**	**Agree**	**SA**
FR1	I am afraid about the chances of losing money if I use Internet Banking are high.	**1**	**2**	**3**	**4**	**5**
FR2	I am afraid about; I will lose control of my bank account.	**1**	**2**	**3**	**4**	**5**
FR3	I am afraid about, using Internet Banking my money will lose and will not be covered by the bank.	**1**	**2**	**3**	**4**	**5**
Social Risk (SR)						
SR1	If I use the Internet Banking and something went wrong with the online transaction, other people think less of me.	**1**	**2**	**3**	**4**	**5**
SR2	If I use Internet Banking, it will negatively affect the way others think of me.	**1**	**2**	**3**	**4**	**5**
Time Risk (TR)						
TR1	It would take me lots of time to learn how to use Internet Banking services.	**1**	**2**	**3**	**4**	**5**
TR2	Using Internet Banking would	**1**	**2**	**3**	**4**	**5**

	lead to a loss of convenience for me because I would have to waste a lot of time fixing payment error and setup error.					

Section B: Personal Information

1. **Gender**
   a. Male
   b. Female

2. **Age**
   a. Less than 20 years
   b. 20-30 Years old
   c. 30-40 years old
   d. 40-50 years old
   e. Over 50 years

3. **Highest Education qualification**
   a. Schooling
   b. High School
   c. Bachelor
   d. Master or More

4. **Current Profession**
   a. Student
   b. Government Employee
   c. Private sector employee
   d. Self employed
   e. Other

5. **Monthly Income**
   a. Less than 10,000 NPR
   b. 10,000 NPR – 20,000
   c. 20,000 NPR – 30,000
   d. 30,000 NPR - 40,000
   e. 40,000 NPR – 50,000
   f. More than 50,000 NPR
   g. Not Applicable (Student)

6. **Period of Internet Use**
   a. Less than 1 year
   b. 1 – 2 year
   c. More than 2 year
   d. Not Applicable

7. **Period of Internet Banking Use**
   a. Less than 1 year
   b. 1 – 2 year
   c. More than 2 year
   d. Not Applicable

8. **Platform you prefer**
   a. Mobile Banking
   b. Internet Banking