

# **RISKS AND BENEFITS ASSOCIATED WITH ADVANCED MOBILE BANKING SERVICES IN NEPAL**

A Dissertation submitted to the office of the Dean, Faculty of Management in partial  
fulfilment of the requirement for the Master's Degree

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## CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “**Risks and Benefits Associated with Advanced Mobile Banking Services in Nepal**”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirement for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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## REPORT OF RESEARCH COMMITTEE

Ms./Mr. Rajana Maharjan has defended research proposal entitled “**Risks and Benefits Associated with Advanced Mobile Banking Services in Nepal**” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per Suggestions and guidance of supervisor Srijana Khadka and submit the dissertation for evaluation and viva voce examination.

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## APPROVAL SHEET

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# TABLE OF CONTENTS

	Page No.
<i>Title page</i>	<i>i</i>
<i>Certificate of Authorship</i>	<i>ii</i>
<i>Report of Research Committee</i>	<i>iii</i>
<i>Approval Sheet</i>	<i>iv</i>
<i>Acknowledgements</i>	<i>v</i>
<i>Table of Contents</i>	<i>vii</i>
<i>List of Tables</i>	<i>viii</i>
<i>List of Figures</i>	<i>ix</i>
<i>Abbreviations</i>	<i>x</i>
<i>Abstract</i>	<i>xi</i>
CHAPTER I INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Brief Profile of Sample Banks	3
1.2 Problem Statement	4
1.3 Objectives of the Study	4
1.4 Rationale of the Study	5
1.5 Limitations of the Study	5
CHAPTER II LITERATURE REVIEW	6
2.1 Theoretical Review	6
2.1.1 Digital Banking in Nepal	6
2.1.2 Definition of Mobile Banking	6
2.1.3 Types of Mobile Banking Services	7
2.1.4 Benefits of Mobile Banking	8
2.1.5 Risks of Mobile Banking	9
2.1.6 Nepal Rastra Bank Information Technology Guidelines	10
2.1.7 Challenges of Mobile Banking	11
2.1.8 Technology Acceptance Model (TAM)	12
2.2 Empirical Review	13
2.2.1 Review of International Articles and Journals	13
2.2.2 Review of National Articles	21
2.3 Research Gap	22

CHAPTER III RESEARCH METODOLOGY	23
3.1 Research Design	23
3.2 Population and Sampling Procedure	23
3.3 Nature and Sources of Data Collection	23
3.4 Instrumental Model	24
3.5 Research Framework and Definition of Variables	24
3.6 Methods of Data Analysis	25
CHAPTER IV RESULTS AND DISCUSSION	28
4.1 Results	28
4.1.1 Questionnaire Return Rate	28
4.1.2 Demographic Profile of Respondents	29
4.1.2.1 Respondents Age Profile	29
4.1.2.2 Respondents Gender	29
4.1.2.3 Respondents Occupation	30
4.1.2.4 Respondents Education	31
4.1.2.5 Purpose of Using Mobile Banking Services	31
4.1.3 Descriptive Statistics	32
4.1.3.1 Descriptive Analysis of Risk	33
4.1.3.2 Descriptive Analysis of Benefit	34
4.1.3.3 Descriptive Analysis of Mobile Banking Services	35
4.1.4 Correlation Analysis	36
4.1.5 Regression Analysis	37
4.2 Discussion	40
CHAPTER V SUMMARY AND CONCLUSION	41
5.1 Summary	41
5.2 Conclusion	42
5.3 Implications	43
REFERENCE	
APPENDIX	

## LIST OF TABLES

	Page No.
Table 1 Summary of the Empirical Review	17
Table 2 Response Rate	28
Table 3 Age of Respondents	29
Table 4 Gender of Respondents	30
Table 5 Occupation of Respondents	30
Table 6 Education of Respondents	31
Table 7 Purpose of Using Mobile Banking Services	32
Table 8 Descriptive Analysis of Risks	33
Table 9 Descriptive Analysis of Benefits	34
Table 10 Descriptive Analysis of Mobile Banking Services	35
Table 11 Correlation Analysis	36
Table 12 Model Summary of Mobile Banking Services	37
Table 13 ANOVA Table	38
Table 14 Regression Coefficient	38

## LIST OF FIGURES

	Page No.
Figure 1 Research framework for the study	24

## ABBREVIATIONS

ABI	:	Abstracted Business Information
AI	:	Artificial Intelligence
AIMB	:	Artificial Intelligence and Mobile Banking
AMOS	:	Analysis of Moment Structure
ATM	:	Automated Teller Machine
BAL	:	Balance
COVID	:	Corona Virus Disease
GIBL	:	Global IME Bank Limited
M-banking	:	Mobile Banking
PIN	:	Personal Identification Number
r	:	Coefficient of Correlation
ROA	:	Return on Assets
ROE	:	Return on Equity
SDT	:	Self Determination Theory
Sig	:	Significant value
SMS	:	Short Message Service
SPSS	:	Statistical Package for Social Sciences
SSL	:	Secure Sockets Layer
TAM	:	Technology Acceptance Model
TCT	:	Technology Continuance Theory
TRA	:	Theory of Reasoned Action
USSD	:	Unstructured Supplementary Service Data
UTAUT	:	Unified Theory of Acceptance and Usage Technology

## ABSTRACT

The study deals with risks and benefits associated with mobile banking services, with the objectives of examining the relationship between risks and benefits with mobile banking services and analyzing the impact of independent variables (risks and benefits) on dependent variables (mobile banking services). The study uses a descriptive and causal research design to interpret and analyze the collected data through a questionnaire survey. The customers of the sample commercial banks (Global IME Bank, Nabil Bank, and NIC Asia Bank) were chosen from 200 respondents by using a convenient sampling method. Descriptive tools like correlation and regression analysis were used to analyze the data. Risks and benefits were used as independent variables and mobile banking services as dependent variables.

The finding shows that there is a low correlation between risks and mobile banking services and a medium correlation between benefits and mobile banking services. Similarly, from regression, risks on mobile banking services are statistically insignificant and benefits on mobile banking services are statistically significant.

*Keywords: Risks, Benefits, Mobile Banking Services*

# CHAPTER I

## INTRODUCTION

### 1.1 Background of the Study

Mobile banking apps have grown in popularity as targets for hackers for apparent reasons. These applications frequently include private data that can be used to obligate identity theft, such as account numbers and personal identification numbers. Furthermore, millions of individuals use banking apps worldwide, which makes them a major target for cybercriminals. Although mobile banking apps are practical and simple to use, there are serious security threats that both consumers and financial institutions must consider. Security holes in financial applications come with a number of concerns. Due to these vulnerabilities, attackers may be able to enter user accounts without authorization, take important information, and even send money (Balapour, 2020).

The favored method of banking for many individuals in today's hectic world is mobile banking. It seems logical that mobile banking has gained so much traction given the ease with which you may access your account at anytime, anywhere. There is a cost associated with this convenience, though dangers to the safety of mobile apps (Laukkanen & Kiviniemi, 2010). Mobile banking apps have become a main target for hackers, seeking out methods to take advantage of these apps' deficiencies. When a mobile banking app experiences an attack on security, it can have disastrous effects on both the customer and the financial institution (Ho & Lee, 2020).

Customers and banks alike are enthusiastic about the benefits of mobile banking since it saves money by eliminating the need for expensive traditional banking services. Every day, more people utilize mobile banking because of these advantages. particularly in the COVID-19 scenario, when it is imperative to be able to perform a variety of tasks while remaining at home. Further developments in mobile banking are necessary because the future of pandemics is still uncertain. Banks have a better chance of surviving in the digital age if they can offer more online services (Singh & Srivastava, 2018).

Mobile banking has developed as a breakthrough technology that is changing the way individuals handle their money. It has become a vital instrument for users who want to use their accounts at any time, from any location, and on any device. As mobile banking

expands, it is critical to understand its evolution, trends, advantages, problems, and impact on the banking sector (Sharma & Sharma, 2019). The development of information and communication technology, as well as the growing number of internet and mobile phone users, has altered ways of providing services. As a result, firms have used a variety of creative approaches to reach their customers. Mobile banking is an economical and creative avenue for providing financial services to customers (Jebarajakirthy & Shankar, 2021).

Mobile banking is a digital banking service that allows users to use their bank accounts and carry out transactions using their mobile devices. It is a comparatively fresh phenomenon, only having grown accessible in recent years. Yet it has rapidly become one of the most widely used banking techniques, transforming the way consumers interact with their banks (Barnes & Corbitt, 2003). These days, it is difficult to imagine a life without internet payments. Mobile banking technology enables us to buy things, pay bills, order food, and do banking transactions via banking mobile apps. The benefits of mobile banking include 24/7 online support, a wide range of services and operations available from your phone, efficient and time-saving solutions, and safe and more customized methods (Geebren & Jabbar, 2021).

Mobile banking apps have transformed the way we handle our money, but they come with a steep cost of comfort. Mobile banking safety is critical, given customers' increasing reliance on mobile apps for financial activities. The hazards connected with mobile banking apps can result in monetary losses, reputational damage, and a reduction of belief in the banking system. Customers and organizations must understand the risks and employ the necessary precautions to protect themselves against them. Banks and financial institutions must put in place efficient safety procedures to safeguard their customers' information and finances.

Nepal has seen a trend towards digital banking in recent years. Nowadays, an increasing number of people use their mobile phones to access financial services. According to Nepal Rastra Bank's most recent figures, more than 9 million people in Nepal use mobile banking. Several circumstances and events have contributed to the switch to mobile banking. Using financial services via mobile apps is straightforward and simple. Similarly, financial institutions have begun to focus more on mobile banking, boosting the safety and ease of their apps while also improving the customer experience. In addition, greater

access to digital devices and enhanced network connectivity have contributed to the expansion of mobile and online banking in Nepal (Dhakal, 2022).

Mobile phones can be taken anywhere and are used by a vast number of people. In the age of globalization and digitalization, mobile banking has demonstrated a path to the top of the banking hierarchy with its diverse range of services. Mobile banking allows customers to conduct financial activities, send funds, make credit card payments, and access account information from anywhere.

### **1.1.1 Brief Profile of Sample Banks**

#### **Global IME Bank Limited (GIBL)**

Global IME Bank was created in 2007 as an 'A' class commercial bank in Nepal, offering comprehensive commercial banking services. The goal of Global IME Bank is to gain respectable market share through customer-focused quality products and services, innovative business solutions, and technology-driven banking, thereby enhancing the bank's growth and profitability and ensuring the best possible benefit to all stakeholders at all times. The authorized capital of Global IME Bank is NPR 57,042.31 million, while the paid-up capital is NPR 35,771.06 million. GIBL was promoted by a team of famous indigenous entrepreneurs with a track record of success in their ever-expanding industry. The stockholders' structure is 51% promoters and 49% public. The bank's promoters include recognized, well-established, and respected businessmen and industrialists from Nepal's various sectors, including banking, remittance, commerce, export, automobile services, manufacturing, and hydropower. The bank provides a comprehensive variety of banking services, including deposits, lending, trade financing, and remittances.

#### **Nabil Bank**

Nabil Bank, established in 1984 AD, has played an important role in the growth of Nepal's financial services industry. The Bank has always maintained its three strong pillars: service excellence, technology, and product innovation. The bank's goal is to deliver the best financial services possible to its customers. The paid-up capital of Nabil Bank is Rs. 27 billion. The bank's shareholding structure is as follows: 60% promoter and 40% public. The bank provides a variety of goods, including loans, deposits, digital banking, and remittances.

#### **NIC ASIA Bank**

NIC AISA Bank was established in July 1998. The goal of NIC Asia Bank is to provide institutional credit to the general population who do not have access to traditional banking

facilities in the district's rural areas, with the idea of encouraging and assisting rural communities in achieving long-term financial growth. The bank has a paid-up capital of Rs. 11.56 billion. The promoters own 51% of the bank's shares, while public shareholders own 49%. The bank offers deposits, loans, remittances, and both funded and unfunded facilities.

## **1.2 Problem Statement**

This study investigates and evaluates the risks and benefits related to mobile banking services that customers experience when using them. While mobile banking has numerous benefits, it is not without challenges and possible risks. One of the most significant challenges is security. As mobile banking grows, it becomes more vulnerable to fraud and hacking. This is a serious worry for both customers and financial institutions, and it must be addressed to ensure mobile banking's long-term viability. Another issue with mobile banking is acceptance. While mobile banking is becoming more popular, many people remain unwilling to use it, either because they are unaware of its benefits or because they are concerned about security.

Mitchell (1999) defines risk as a subjective anticipation of loss; the higher the predicted chance of loss, the greater the perceived risk. This will reduce the customer's motivation to use mobile banking. Mukherjee and Nath (2003) discovered that communication had a large beneficial impact on trust, and trust can encourage more users to use mobile banking services. Furthermore, Laforet and Li (2005) conclude that clients are unaware of the services supplied by banks; hence, they do not use mobile banking services. So, this study contributes to understanding the risks and benefits of enhanced mobile banking services. As a result, this study will aim to answer the following research questions:

- i. What is the current status of risk, benefit and mobile banking services of commercial banks?
- ii. What is the relationship between risks and benefits with mobile banking services?
- iii. How does independent variables (risks and benefits) impact on dependent variable (mobile banking services)?

## **1.3 Objectives of the Study**

The general objective of the study is to determine the risks and benefits associated with advanced mobile banking services in Nepal. The specific objectives of the study are

- i. To examine the current status of risk, benefit and mobile banking services of commercial banks.

- ii. To examine the relationship between risks and benefits with mobile banking services.
- iii. To analyze the impact of independent variables (risk and benefits) on dependent variable (mobile banking services).

#### **1.4 Rationale of the Study**

This research contributes to a better knowledge of the mobile banking services offered by commercial banks to their consumers. Mobile banking has become a highly easy method for making transactions anywhere, at any time, without having to visit a bank. However, many people are still unfamiliar with mobile banking; hence, this study is vital to establish the total influence of mobile banking technology on its customers.

- i. This research will be valuable to investigators, students, and others interested in furthering their studies.
- ii. This study will be useful for administrators, policymakers, and others interested in the research of mobile banking.
- iii. This study will help customers, management, and information technology experts understand how mobile banking provides convenience for users and what upgrades may be made for better results and customer satisfaction.

#### **1.5 Limitations of the Study**

This research contains the following limitations:

- i. There are 20 commercial banks as of February 24, 2023, according to Nepal Rastra Bank, and among them, only three commercial banks (Global IME Bank, Nabil Bank, and NIC Asia Bank) are taken as samples for the study.
- ii. Only limited statistical tools are used for the study.
- iii. The study uses only primary data.
- iv. This study does not consider the size, other products, or services of the bank.

## **CHAPTER II**

### **LITERATURE REVIEW**

A review of the literature is an examination of the conceptual issues involved in the research as well as the conclusions of related research. This is the process of analyzing research studies in relation to the study's linked topic so that all prior studies, their results, and inadequacies can be identified and future research can be conducted more effectively. This chapter reviews and presents related articles, books, research papers, and past studies on the topic of this study.

#### **2.1 Theoretical Review**

##### **2.1.1 Digital Banking in Nepal**

The computerized handling of traditional financial services utilizing a digital platform is referred to as "digital banking". The history of digital banking in Nepal began in 1990, when Nabil Bank introduced credit cards. Laxmi Bank initially implemented SMS banking (mobile banking) in Nepal in 2004. A digital banking service is a banking activity or service in which the facilities employ an electric or digital system through the ownership of a bank, the ownership of a prospective customer, or a bank customer, with every activity carried out solely and automatically.

Initially, digital banking services were largely utilized for checking account statements. Customers did not have a thorough understanding of the capabilities and applications of digital banking. The development of digital banking technologies takes a long time. Internet and smartphone use are now commonplace. Customers no longer have to visit bank locations to conduct financial transactions, owing to mobile devices and the Internet.

##### **2.1.2 Definition of Mobile Banking**

The term "mobile banking" describes the process of accessing, managing, and completing different financial transactions using a mobile device, such as a smartphone or tablet. Without having to stop by an ATM or bank branch, mobile banking apps provide a quick and safe way to manage money on the go. From the comfort of your own smartphone, you may check your account balances, examine transactions, transfer money, pay bills, and much more using a mobile banking app. We will look at the advantages of mobile banking in this blog, along with some tips for getting started.

Mobile banking is a service that lets users use a mobile device, like a smartphone or tablet, to access their bank accounts and carry out different banking operations, like making transfers, checking account balances, and paying bills. Customers must first install and set up a user profile for the bank's mobile app from an approved app store in order to access mobile banking. Customers can use their mobile devices to access a variety of banking services and features after installing the app and creating a user profile.

- Through a mobile banking application, a client can carry out multiple banking operations.
- The mobile banking application requires a smartphone and a reliable internet connection.
- Customers can use it to perform banking transactions from anywhere at any time.
- Customers can access mobile banking services via SMS.
- Consumers who use the mobile banking application get push notifications for timely updates, sales, and discounts.

Mobile banking is an electronic banking service that banks offer to their current clients. It allows users to access their bank accounts and perform a variety of activities using a mobile device—such as a tablet or smartphone—anytime they are online. You can quickly access your bank account, check your balance, transfer money, pay bills, deposit checks, and more using a mobile banking app. In general, practically every service and product offered by your bank is available to you. Additionally, it's user-friendly, enabling you to perform tasks or check your bank account whenever you have an internet connection and monitor it around-the-clock.

### **2.1.3 Types of Mobile Banking Services**

There are three types of Mobile Banking Services Provided by almost every Banks these days.

#### **Mobile Banking over SMS (also known as SMS Banking)**

In simple terms, it's the use of an application for mobile banking. Clients can easily access all of the bank's services by installing the proper bank's mobile application on their smartphones. For iOS and Android smartphones, all banks offer mobile applications. You need to register individually and obtain the login information in order to utilize mobile banking. These login credentials are available through online banking, SMS, or in-bank applications for mobile banking.

These days, banks provide their clients with mobile applications to streamline financial processes. They might provide many applications for various services. For example, you could download the e-passbook app, which is a digital passbook, to find out your account balance. Similarly, there are apps for transferring money, paying bills, and other tasks. Customers can use mobile banking services by downloading one or more of the bank's apps, depending on their needs.

### **Mobile Banking over Wireless Application Protocol (WAP)**

Mobile banking services are provided by most banks via SMS. Referred to as SMS banking, users must register their mobile number with the bank in order to access this service. They can then receive a brief account statement, send SMS to the bank to check their account balance, and even send small sums of money to the bank. When the text is sent, the bank will send you an SMS with the data the customer requested. For clients to utilize SMS banking, therefore, neither internet connectivity nor smartphones are required.

Each bank has a certain SMS form for every service, which you must adhere to in order to obtain the necessary data. For example, type BAL XXXX (where XXXX is the final four digits of your account number) and send it to the specified number to check the available amount in your account. The bank responds to this SMS with an SMS that shows the amount that is now accessible in your account.

### **Mobile Banking over Unstructured Supplementary Service Data (USSD)**

The banks offer the Unstructured Supplementary Service Data (USSD) service to customers without smartphones or internet access. Customers can access financial services by using the USSD codes that the banks have issued. After entering a prefix code and selecting "send," customers are meant to see a menu with banking services that can be accessed via their phone, like small statements and balance inquiries. In rural areas, where most people lack access to smartphones and the internet, this service is highly common.

#### **2.1.4 Benefits of Mobile Banking**

There are many benefits of mobile banking, a few among them are:

##### **Time Saving**

With the speed and instantaneous nature of mobile banking, you can do simple transactions without depending on banks. Which would you prefer—transferring money quickly or seeing the amount of your account or the specifics of your previous transactions? All that needs to be done is download the mobile banking app from your bank to your phone.

### **Remote Banking**

Are you going overseas, or are you traveling to a different city? A strong mobile and internet network, along with a steady internet connection, are all you need, wherever you are. Through mobile banking, you may do a variety of transactions from any location in the world.

### **Monitoring Transactions**

Keeping track of all your financial transactions is another benefit of mobile banking. By utilizing your mobile banking app, you can easily contest illegal transactions and keep an eye on your bank accounts.

### **Easy Access**

With mobile banking, you may apply for loans, make transfers of money, and view account balances and bills. With your mobile banking app, you may purchase checkbooks, apply for credit and debit cards, establish fixed and recurring deposits, and much more.

### **Round-the-clock availability**

Mobile banking is all about seven days a week. Through the mobile banking app, you may obtain banking information in minutes, start fund transfers at any time of day, and contact customer service support lines.

### **Value-added Services**

Moreover, mobile banking apps allow you to buy insurance policies, recharge your phone, pay your utility bills, and more. In addition to paying taxes, you can open pension accounts, open investment securities accounts, and more.

## **2.1.5 Risks of Mobile Banking**

### **Unsecure Information**

Mobile banking carries some risk. Using a text messaging app, users must provide personal information in order to access financial services via mobile banking. Via unprotected Wi-Fi hotspots, attackers may attempt to access those messages. There are other risks associated with the bank's insufficient investment in technology-encryption safety. The customer's private information would be vulnerable to interception as a result.

### **Regulatory issues**

To oversee their mobile banking services, financial institutions hire telecom agents. It is challenging for a nation's central bank to regulate banking activities according to a common set of criteria when telecom agents are independent or franchised. As a result, different banks may set up various guidelines for mobile banking, employ poor software for banking security, and demand exorbitant prices for this service. These problems have the potential to confuse consumers and give banks the chance to take advantage of them.

### **Viruses**

To preserve the privacy of their customers, financial institutions make sure that a secure layer is placed over their connections. Nevertheless, Trojans and other infections can easily infect some mobile phones. Through a customer's mobile device, these infections provide attackers access to your banking information.

### **Security**

When it comes to financial services, certain banks provide more privacy through their branches than through their mobile banking apps. Due to the risks involved in investing in the system or managing its expenses, some institutions choose not to provide mobile banking services. The theft of a customer's mobile device is one of the other concerns. Consumers suffer the risk of having their financial information compromised if they misplace or have their mobile phone stolen. This exposes the client to the risk of fraud.

### **2.1.6 Nepal Rastra Bank Information Technology Guidelines**

#### Information Security

For banks to control risk sensibly and accomplish business objectives, reliable information is essential. Information handled and stored electronically must meet certain requirements, including accuracy, integrity, consistency, completeness, validity, timeliness, accessibility, usability, and auditability. In order to get these data attributes, banks had to establish and uphold an extensive information security procedure.

- i. To maintain the security of data kept or sent electronically, banks should have in place data security policies and procedures. This should address, among other things, the proper protocol for disposing of data, the storage of data on portable devices, the security of media during transportation or storage, the physical and environmental control of storage media, and the encryption of sensitive customer data that is being transferred, delivered, or transported to other locations.

- ii. When employing a wireless network, the bank should assess the security risk and implement any necessary additional measures.
- iii. The most recent risks and modifications to the methods used by electronic attacks should be taken into account while updating the information security policy, guidelines, and education program.
- iv. When offering banking services through mobile devices, banks should, among other things, take into account the security of data that can be held on those devices as well as the encryption of transaction data and PINs/passwords from those devices to the bank's system. If a bank offers financial transfers, then other limitations, such as daily and per-transaction limits, should also be specified. Accounts in Nepalese currency should be the only ones eligible for mobile banking.
- v. Due to the growing risk of online attacks, banks should, among other things, use multiple authentication factors when confirming important transactions like financial transfers made through online banking services. The authentication process ought to be in line with the level of risk associated with online banking.
- vi. In order to protect their web apps from past and new attacks and crimes, banks should put in place sufficient security measures. Additionally, vital applications should use the most recent SSL encryption.
- vii. To safeguard user passwords, customer PINs, and other sensitive data in networks and storage, banks should implement robust cryptography and end-to-end encryption.

Source: Nepal Rastra Bank

### **2.1.7 Challenges of Mobile Banking**

Even though mobile banking has a lot of advantages, there are drawbacks and possible hazards. Security is one of the main issues. Mobile banking is more susceptible to scams and hacking as it gets more popular. In order to guarantee the ongoing viability of mobile banking, this is a serious problem for both consumers and financial institutions.

Acceptance is yet another issue that mobile banking is encountering. Many people are still reluctant to utilize mobile banking, despite its growing popularity. This may be because they are worried about security or are unaware of its advantages. Financial institutions have to make an effort to allay consumers' fears and inform them about the advantages and security of mobile banking. Focused advertising campaigns, in-person presentations, and

the provision of extra security features like multi-factor and biometric identification may assist with accomplishing this.

The Bank of America mobile banking app is one instance of successful mobile banking adoption. Since the release of its application, the bank has witnessed a notable improvement in both its financial results and customer happiness. By providing its clients with choices for biometric and multi-factor authentication, Bank of America has also taken action to address safety issues.

Another significant effect that mobile banking is having is on the banking industry. Traditional brick-and-mortar banks are experiencing more competition from technology-focused businesses that are providing cutting-edge mobile banking services due to the growing number of people using mobile banking. Furthermore, conventional banks must incorporate mobile banking technology into their current offerings and adjust to the shifting demands of their customers.

### **2.1.8 Technology Acceptance Model (TAM)**

The Theory of Reasoned Action (TRA) served as the theoretical foundation for the development of the Technology Acceptance Model (TAM), which outlines the causal relationships between users' attitudes, intentions, and actual usage behavior and perceived utility and ease of use. Davis (1989) improved measures for describing and forecasting usage were created and verified, and the core drivers of system use were found to be two theoretical constructs: perceived usefulness and perceived ease of use. Preciseness and perceived simplicity of use are thus substituted for the TRA's determinants of attitude in TAM. Lule et al. (2012) examined the variables influencing Kenyans' adoption of mobile banking using an applied technology acceptance model. The assessment of the Kenyan mobile banking app "M-Kesho" was the study's primary topic. Perceived usefulness, perceived self-efficacy, perceived credibility, and perceived ease of use were found to have a substantial impact on customers' attitudes regarding M-banking usage.

This theory is relevant to the study because customers of banks are adopting mobile banking as a new technology to make their banking tasks more convenient. It highlights that bank consumers can access banking transactions with just a few clicks, from anywhere at any time, and without having to physically visit banks.

## **2.2 Empirical Review**

### **2.2.1 Review of International Articles and Journals**

Inan et al. (2023) studied on the service quality and self-determination theory towards continuance usage intention of mobile banking. The aim of the research was to examine the relationship between self-determination theory (SDT) and quality service in relation to the ongoing use of mobile banking. Structural equation modeling is used to empirically test the research model suggested in this study. According to the study, satisfaction is directly impacted by service quality, in addition to being considerably mediated by SDT. It also explains that the intention to continue using m-banking is significantly influenced by satisfaction and perceived utility.

Iqbal et al. (2023) researched on integrating trust with extended UTAUT model: a study on Islamic banking customer's m-banking adoption in the Maldives. The aim of the research was to investigate the factors that influence Islamic banking clients' intention to use mobile banking, or m-banking, and their actual usage of it. This was achieved by incorporating the trust factor into the UTAUT2 model. The study's data analysis approach was partial least squares, and its moderation-related analysis was multi-group analysis. The study discovered that among clients of Islamic banks, trust has an important and beneficial effect on their decision to adopt mobile banking. Behavioral intentions among Islamic banking consumers are also highly influenced by social influence, effort anticipation, hedonic incentives, and habits.

Samsudeen and Selvaratnam (2022) conducted study on intention to use mobile banking services: an Islamic banking customers' perspective from Sri Lanka. The study aimed to determine the factors that influence Islamic banking consumers' intention to use mobile banking services in Sri Lanka. A questionnaire survey was utilized in the quantitative approach study. Partial least squares structural equation modeling in conjunction with SmartPLS was used to analyze the data. The study discovered both the major influence of the moderating variables, as first proposed, and the significant effect of all the variables on the intention of Islamic Banking clients to utilize m-banking services.

Souiden et al. (2021) analyzed on mobile banking adoption: a systematic review. The study's goal was to present a cutting-edge analysis of this specific, rapidly expanding class of services. It lists and evaluates the key factors that influence and obstruct consumers'

adoption of mobile banking. It also lists the most typical effects of this adoption. Utilizing three significant academic databases—ABI/INFORM Worldwide, Web of Science, and Business Source Premier—the study evaluated 76 publications and generated a comprehensive analysis that reveals the key hypotheses, conceptual frameworks, and models that account for why customers opt for mobile banking. The technology acceptance model (TAM) and the unified theory of acceptance and utilization of technology (UTAUT) are still the primary theoretical frameworks and models that academics have accepted and modified to explain why consumers use or expect to use mobile banking, according to the study. Numerous causes and effects that are commonly utilized in the literature on mobile banking are reported using the vote counting method. These were divided into five primary viewpoints: The following perspectives inform m-banking: (1) attributes-based; (2) customer-based; (3) social influence-based; (4) trust-based; and (5) barriers-based.

Payne et al. (2021) studied on enhancing the value co-creation process: artificial intelligence and mobile banking service platforms. The study's goal was to find out which relationships affect the process of co-creation of value and make users more comfortable using mobile banking (AIMB) and artificial intelligence (AI). Five antecedents were considered in the study to investigate the value-in-use perceptions of AI-based mobile banking applications: baseline perceptions of current bank service delivery; benefits of service delivery configuration; general data security; safety perceptions of particular mobile banking services; and perceptions of AI service delivery. The study employed structural equation modeling. A conceptual model was developed. The significance and function of the sequential linkages that affect AIMB assessment were discovered by the study. The results indicate that the introduction of AI into a digital self-service technology channel alters the nature of service delivery and the customer's involvement in value co-creation. Additionally, AIMB provides value propositions that are more transaction-oriented (utilitarian) than relationship-oriented (hedonic).

Kwateng et al. (2019) researched on acceptance and use of mobile banking: an application of UTAUT2. The goal of the study was to apply the unified theory of acceptance and use of technology 2 (UTAUT2) model, with age, educational level, user experience, and gender working as moderators, to examine the characteristics that motivate customers in Ghana to adopt and subsequently use m-banking services. 300 Ghanaian users of m-banking services were selected as respondents for the questionnaire survey that was used

in the study. SmartPLS software was used to analyze the primary data that was gathered. According to the study, the primary determinants of m-banking uptake and usage in Ghana are habit, price value, and trust. As they modulated the link between UTAUT2 components and use behavior, individual differences in gender, age, educational attainment, and user experience all responded differently. The UTAUT2 model's applicability within the research's setting was verified.

Raza et al. (2019) studied on acceptance of mobile banking in Islamic banks: evidence from modified UTAUT model. The aim of the research was to investigate the variables influencing the adoption of mobile banking (M-banking) in Pakistan's Islamic banks through the use of the modified unified theory of acceptance and use of technology (UTAUT) model. The five-point Likert scale was employed in the survey approach to collect data for the study, which included partial least squares structural equation modeling. The study discovered that, with the exception of social influence, all the variables had a significant beneficial impact on the intention that leads to actual use.

Foroughi et al. (2019) researched on understanding the determinants of mobile banking continuance usage intention. The aim of the research was to examine the factors that influence m-banking users' intentions to continue using the service, incorporating self-efficacy and channel preference into the technology continuation theory (TCT). Partial least squares analysis was employed in the study to examine empirical data from 369 Malaysian consumers who had previously used mobile banking. Perceived usefulness (PU), satisfaction, attitude, and plans to continue using m-banking were shown to be highly explicable by the TCT model, according to the study. Moreover, in the m-banking setting, self-efficacy and channel significance were major indicators of continuation intention. The findings indicate that in the post-adoption stage, attitude and PU are unaffected by perceived ease of use.

Singh and Srivastava (2018) examined on predicting the intention to use mobile banking in India. The study aimed to determine the factors that impact the uptake of mobile banking in India and to create and verify, through empirical means, a model that explains the behavioral intention to use mobile banking in the Indian banking industry. Using a sample of 855 bank customers from Indian cooperative, public, private, and international banks, the study employed the survey approach. AMOS 16.0 was utilized for the investigation of structural equation modeling. According to the study, 76.9% of the

variance in the dependent variable could be explained by the suggested theoretical model, which was found to predict the intention to use mobile banking with statistical significance. The findings indicate that customers' desire to use mobile banking is influenced by security, perceived ease of use, computer self-efficacy, and perceived financial expenses with regard to order of influence.

Farah et al. (2018) conducted study on mobile-banking adoption: empirical evidence from the banking sector in Pakistan. The study's goal was to investigate the key elements that contribute to the understanding of consumer intention and usage patterns in the adoption of mobile banking, or m-banking. A five-point Likert scale was employed in the study to assess consumer answers via a questionnaire. In Pakistan, data was gathered from a sample of 490 respondents using a convenience sampling technique. For the purposes of correlation and structural equation modeling, Harmon's single factor test, AVE, CR, CMV, and Cronbach's  $\alpha$ , AMOS, and SPSS were used to analyze the data. The study shows that the majority of the determinants of intention are significant, including perceived value, perceived risk, trust, hedonic motivation (apart from the facilitating condition), performance expectancy, habit, and social influence. There is considerable data for each predictor of consumption behavior.

Arcand et al. (2017) studied mobile banking service quality and customer relationships. The study's goal was to look into the multifaceted idea of mobile banking service quality, including security/privacy, usability, design/aesthetics, enjoyment, and sociality, and how the last one affects the quality of the relationship (commitment, trust, and satisfaction) that customers have with their main financial institution. A sample of 375 people who all had mobile devices and were habituated to completing financial transactions on mobile platforms participated in the online survey utilized for the study. Structural modeling tools (EQS 6.1) were used to assess the results. According to the study, dedication and satisfaction are highly and favorably impacted by trust. Dimensions of the quality of mobile banking services also affect commitment, satisfaction, and trust. While commitment and happiness are motivated by enjoyment and sociality—dimensions that are more sensual by nature—trust is linked to security, privacy, and practicality, which are viewed as practical qualities. There is no correlation between commitment, satisfaction, or trust and interface design.

**Table 1**

## Summary of Empirical Review

Authors Surname	Topic	Objective	Methodology	Findings
Inan et al. (2023)	Service quality and self-determination theory towards continuance usage intention of mobile banking	To examine the relationship between self-determination theory (SDT) and quality of service in relation to the ongoing use of mobile banking	Structural equation modelling	According to the study, satisfaction is directly impacted by service quality, in addition to being considerably mediated by SDT. It also explains that the intention to continue using m-banking is significantly influenced by satisfaction and perceived utility.
Iqbal et al. (2023)	Integrating trust with extended UTAUT model: a study on Islamic banking customer's m-banking adoption in the Maldives	To investigate the factors that influence Islamic banking clients' intention to use mobile banking, or m-banking, and their actual usage of it.	Partial least squares	The study discovered that among clients of Islamic banks, trust has an important and beneficial effect on their decision to adopt mobile banking. Behavioral intentions among Islamic banking consumers are also highly influenced by social influence, effort anticipation, hedonic incentives, and habits.

Samsudeen and Selvaratram (2022)	Intention to use mobile banking services: an Islamic banking customers' perspective from Sri Lanka	To determine the factors that influence Islamic banking consumers' intention to use mobile banking services in Sri Lanka	A questionnaire survey was utilized in the quantitative approach study. Partial least squares structural equation modeling in conjunction with SmartPLS	The study discovered both the major influence of the moderating variables, as first proposed, and the significant effect of all the variables on the intention of Islamic Banking clients to utilize m-banking services.
Souiden et al. (2021)	Mobile banking adoption: a systematic review	To present a cutting-edge analysis of this specific, rapidly expanding class of services	Utilizing three significant academic databases—ABI/INFORM Worldwide, Web of Science, and Business Source	The technology acceptance model (TAM) and the unified theory of acceptance and utilization of technology (UTAUT) are still the primary theoretical frameworks and models that academics have accepted and modified to explain why consumers use or expect to use mobile banking, according to the study
Payne et al. (2021)	Enhancing the value co-creation process: artificial intelligence and mobile banking service platforms	To find out which relationships affect the process of co-creation of value and make users more comfortable using mobile banking (AIMB) and artificial intelligence (AI)	Structural equation modeling	The results indicate that the introduction of AI into a digital self-service technology channel alters the nature of service delivery and the customer's involvement in value co-creation

Kwateng et al. (2019)	Acceptance and use of mobile banking: an application of UTAUT2	To examine the characteristics that motivate customers in Ghana to adopt and subsequently use m-banking services	Questionnaire survey	According to the study, the primary determinants of m-banking uptake and usage in Ghana are habit, price value, and trust. As they modulated the link between UTAUT2 components and use behavior, individual differences in gender, age, educational attainment, and user experience all responded differently
Raza et al. (2019)	Acceptance of mobile banking in Islamic banks: evidence from modified UTAUT model	To investigate the variables influencing the adoption of mobile banking (M-banking) in Pakistan's Islamic banks through the use of the modified unified theory of acceptance and use of technology (UTAUT) model	Partial least squares structural equation modeling	The study discovered that, with the exception of social influence, all the variables had a significant beneficial impact on the intention that leads to actual use.
Foroughi et al. (2019)	Understanding the determinants of mobile banking continuance usage intention.	To examine the factors that influence m-banking users' intentions to continue using the service, incorporating self-efficacy and channel preference into the technology continuation theory (TCT)	Partial least squares analysis	Perceived usefulness (PU), satisfaction, attitude, and plans to continue using m-banking were shown to be highly explicable by the TCT model, according to the study. Moreover, in the m-banking setting, self-efficacy and channel significance were major indicators of continuation

				intention. The findings indicate that in the post-adoption stage, attitude and PU are unaffected by perceived ease of use.
Singh and Srivastava (2018)	Predicting the intention to use mobile banking in India	To determine the factors that impact the uptake of mobile banking in India and to create and verify, through empirical means, a model that explains the behavioral intention to use mobile banking in the Indian banking industry	Survey method	According to the study, 76.9% of the variance in the dependent variable could be explained by the suggested theoretical model, which was found to predict the intention to use mobile banking with statistical significance
Farah et al. (2018)	Mobile-banking adoption: empirical evidence from the banking sector in Pakistan	To investigate the key elements that contribute to the understanding of consumer intention and usage patterns in the adoption of mobile banking	A five-point Likert scale was employed in the study to assess consumer answers via a questionnaire	The study shows that the majority of the determinants of intention are significant, including perceived value, perceived risk, trust, hedonic motivation (apart from the facilitating condition), performance expectancy, habit, and social influence.
Arcand et. al (2017)	Mobile banking service quality and customer relationships	To look into the multifaceted idea of mobile banking service quality, including security/privacy, usability, design/aesthetics, enjoyment, and sociality	Online survey	According to the study, dedication and satisfaction are highly and favorably impacted by trust. Dimensions of the quality of mobile banking services also affect commitment, satisfaction, and

				trust
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### 2.2.2 Review of National Articles

Subedi (2021) analyzed on University students intentions towards mobile banking. The study's goal was to look into the variables that affect college students' intentions regarding mobile banking. The study employed a quantitative methodology and then used questionnaires to gather data. According to the survey, there are a few powerful predators (quality, security, and trust) that affect students' intentions to utilize mobile banking. The students' ongoing use of mobile banking services demonstrates their degree of trust as well. Their positive attitudes toward mobile banking encourage them to keep using it.

Subedi (2021) studied on mobile banking adoption: A perpetual study of students in Tribhuvan University, Kirtipur. The study's goal was to investigate how students nowadays perceive mobile banking. Questionnaires were utilized in the study to gather data. According to the report, a large number of Tribhuvan University students are quite comfortable using mobile banking services for transferring money.

Maharjan (2021) determined the impact of electronic banking service delivery on customer satisfaction in Nepalese private commercial banks. Examining and analyzing commercial banks' e-banking offerings and their effects on client satisfaction and service delivery was the study's goal. Questionnaires were utilized in the study to gather data. The study discovered that e-banking services have an effect on raising customer satisfaction levels, cutting down on wait times for bank services, and enhancing customers' ability to manage account transactions.

Maharjan (2020) researched the factors affecting the usage of mobile banking. Examining the variables influencing Citizens Bank International Limited's mobile banking service usage was the study's goal. A questionnaire was employed in the study to gather data. According to the survey, there is a substantial correlation between the use of mobile banking and customer awareness, perceived ease of use, perceived risk, and transaction

costs. According to studies, e-banking technologies have grown quickly in recent years, and customer use of these services has increased due to the large choice of products available.

Pun (2018) studied e-banking and its impact on financial performance in a Nepalese commercial bank. Examining the impact of electronic banking on Nepal's commercial banks' financial performance was the study's main goal. Analytical and descriptive research methods were employed in this investigation. The findings were presented using multiple regression analysis, appropriate frequency tables, and a coefficient correlation to explain the link between the variables. The study discovered that the financial performance of banks in terms of ROA and ROE was adversely and negligibly impacted by electronic channels (ATM cards and mobile banking). The only banking method that significantly and statistically improved bank profitability in terms of ROA and ROE was online banking.

Badu (2018) examined the impact of electronic banking on customer satisfaction at Nepalese commercial banks. Analyzing how e-banking affects Nepalese commercial banks' customer satisfaction was the study's main goal. A questionnaire was employed in the study to gather data. Customers of commercial banks are comfortable using e-banking services such as the internet, ATMs, and mobile banking, according to the report.

### **2.3 Research Gap**

The goal of this project is to generate data on the risks and benefits of advanced mobile banking services in Nepal. Previous research examined many theories and empirical studies that focused solely on the elements that influence mobile banking: determinants of mobile banking, customer intention to use mobile banking, service quality, trust, and artificial intelligence. The related research was unable to address the risks and benefits of mobile banking services, which are the primary focus of our study. This study uses three private commercial banks in Nepal (Global IME Bank, Nabil Bank, and NIC Asia Bank) as a sample. These banks were chosen as samples because they are Nepal's private commercial banks and had not previously been used as samples in the study. Based on 168 responses, correlation and regression analysis are used in the current study. As a result, this study is fresh in today's context. Furthermore, this study will help future academics who are interested in researching various aspects of this topic.

## **CHAPTER III**

### **RESEARCH METODOLOGY**

Research methodology is a systematic process for solving a problem that includes the systematic gathering, presentation, evaluation, interpretation, and disclosure of data and information. This chapter tries to provide a basic structure for the research activity. This chapter describes the research design, sample size, data collection procedure, data processing tools and procedures, and variables being studied.

#### **3.1 Research Design**

Research design indicates a course of action to be carried out in connection with the proposed work. This study employs a descriptive and causal research design through a quantitative method. Descriptive research design helps to illustrate different independent and dependent variables, and causal research design helps to demonstrate the relationship between independent and dependent variables. Risks and Benefits are the independent variables, and mobile banking service is used as the dependent variable. The study employs a quantitative method for data collection for the purpose of analysis. A structured questionnaire survey was utilized to generate responses, which were then analyzed statistically.

#### **3.2 Population and Sampling Procedure**

The population is the entire collection of individuals or groups from which a sample is chosen. The sample is a subset of a broader population chosen by the researcher to take part in a research study. A sample is a portion of a larger population. According to Nepal Rastra Bank, there are 20 commercial banks operating in Nepal as of February 2023, which is regarded as the population for the study, and among them only three banks were chosen as sample banks (Global IME Bank, Nabil Bank, and NIC Asia Bank) which represents the entire population as sample size. These banks were chosen because they are private commercial banks in Nepal. A total of 200 questionnaires were distributed to the customers, out of which only 168 were returned. Convenient sampling is used in the study as per the convenience of the data collection.

#### **3.3 Nature and Sources of Data Collection**

This study is based on primary data. The major data source was a questionnaire survey administered to consumers of the individual sample banks.

### 3.4 Instrumental Model

Structured questionnaires were employed to collect data for the investigation. The questionnaires have been appropriately created in order to obtain the most accurate information possible, and they have also been designed in an easy way to ensure that the respondent understands the questions. The questions were prepared section by section.

### 3.5 Research Framework and Definition of Variables

The theoretical framework of the study, as presented in Figure 1, shows the relationship between independent and dependent variables. In this conceptual framework, Risks and Benefits are used as independent variables, and Mobile Banking Services are considered a dependent variable of study.

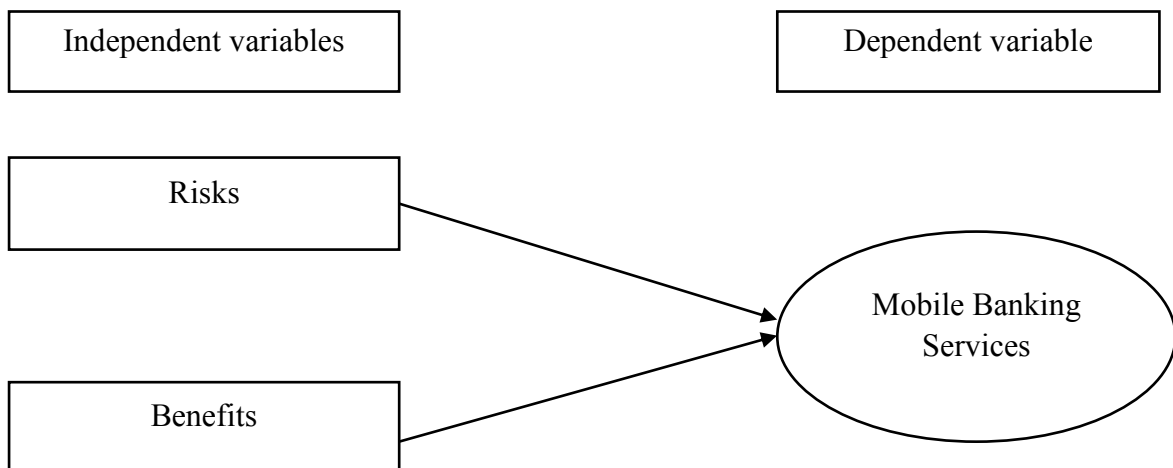


Figure 1: Research Framework for the study

Source: Maharjan (2020)

#### Independent Variables

##### Risks

Risk refers to "uncertainty concerning the outcome of the use of the technology". In reality, risk among users has been demonstrated in the literature on technology adoption as an important factor in acquiring new innovations or services while keeping security concerns in mind. Riquelme and Rios went on to state that the risk factor is a critical factor in investigating mobile innovation adoption. Because mobile banking evolved from internet banking, it is prone to the same hazards. Despite the hazards, the loss and theft of day -to- day transactions using mobile phones pose the biggest risk when compared to internet banking. This suggests that the greater the chance for theft or damage, the higher

the sense of security risk. Consequently, this discourages people from adopting new technology.

### **Benefits**

Benefit means that technology can minimize a person's time and effort to learn or use because most people believe that technology is simple to comprehend and does not make it hard for users to complete their tasks. A product with easier-to-use technology will have a higher perceived utility among users. Benefit is the user's assumption that utilizing a specific system would increase their work performance. Therefore, if a person feels that information services are beneficial, he will use them. Furthermore, benefit refers to a person's level of trust in something; if he believes it is valuable, he will use it.

### **Dependent Variables**

#### **Mobile Banking Services**

Banks provide mobile banking services, enabling consumers to conduct digital transactions at their convenience. Customers use these services to make financial transactions, including fund transfers, checking statements, and balances, more efficient. The use of mobile banking services is determined by the risks and benefits associated with them.

### **3.6 Methods of Data Analysis**

#### **Statistical Methods**

Statistical methods are mathematical tools for analyzing and interpreting numerical data collected from groups of people or groups of observations made by a single person.

#### **Arithmetic Mean**

The arithmetic mean is calculated by dividing the sum of all observations by the number of observations. It is the average value of the specified series. A mean is one of the most useful techniques for determining the average value of a given data set.

$$\text{Mean } (\bar{x}) = \frac{\sum X}{N}$$

where,

X= Set of observation

N= Number of observations

### **Standard Deviation**

Dispersion refers to the determination of the distribution of a figure's mass in a series around an average. The bigger the dispersion, the higher the standard deviation. A modest standard deviation indicates a high degree of regularity in both the observation and the series. In this study, the standard deviation of various ratios is determined.

$$\text{Standard Deviation (SD)} = \sqrt{\frac{\sum(X-\bar{X})^2}{n-1}}$$

### **Coefficient of Variation**

The coefficient of variation is an indicator defined as the standard deviation to the mean ratio, represented as a percentage. The coefficient of variance can be beneficial when comparing the degree of variation among data groups with different means. It's an approximate measurement of dispersion. A distribution with a lower coefficient of variance is considered to be more homogenous than others. In contrast, a series with a higher coefficient of variance is considered to be more variable and diverse than the rest.

$$\text{Coefficient of Variation (CV)} = \frac{SD}{\bar{X}} \times 100\%$$

where,

Standard deviation =SD

Mean =  $\bar{X}$

### **Correlation Analysis**

Correlation analysis is required to determine whether the variables chosen in the time series have an association or not. A correlation measures the link between two or more variables. The measurement scales range from -1.0 to +1.00. A score of -1.00 denotes a perfect negative correlation, whereas a value of +1.00 indicates a perfect positive correlation. The value of r ranges from +1 to -1; r = +1 indicates a perfect positive correlation between the variables, while r = -1 indicates a perfect negative correlation. But in reality, values like r = +1, -1, and 0 are unusual.

$$\text{Correlation analysis (r)} = \frac{n \sum xy - \sum x \sum y}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

### **Multiple Regression Analysis**

Multiple regression analysis examines the link between numerous independent variables and a single dependent variable. This method of analysis enables researchers to determine how much variance in the dependent variable is explained by a group of independent factors. Multiple regression analysis was used to investigate the concurrent effect of numerous independent variables on dependent variables. This study utilized the following regression model to investigate the risk-benefit relationship with mobile banking services.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots\dots\dots (i)$$

Where,

Y= Mobile Banking Services

X1= Risks

X2= Benefits

## CHAPTER IV

### RESULTS AND DISCUSSION

This chapter covers data analysis, presentation, and interpretation of conclusions based on data obtained from customers of sample commercial banks (Global IME Bank, Nabil Bank, and NIC Asia Bank) regarding the risks and benefits of advanced mobile banking services in Nepal. The study included 200 customers from the target population. The data was interpreted based on the research questions. The data was analyzed and presented using descriptive statistics. Correlation analysis was used to investigate the relationship between independent factors and dependent variables. The results were reported in terms of the number of respondents and percentages. This section focuses on the examination of data gathered through primary sources, such as questionnaires. This chapter discusses the questionnaire return rate, respondent demographic information, data presentation, interpretation, and discussion of results.

#### 4.1 Results

##### 4.1.1 Questionnaire Return Rate

During the study, 200 questionnaires were given to the respondents, out of which 168 were returned. The questionnaires were distributed to the sample bank customers who access mobile banking services of the concerned bank and were asked to fill out the questionnaire, and those who were interested filled out the given questionnaire and returned it to the researcher.

**Table 2**

*Response Rate*

<b>Respondents</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Responses	168	84%
Non responses	32	16%
Total	200	100%

Source: Survey data, 2024

### 4.1.2 Demographic Profile of Respondents

This section focuses on various respondent profiles, such as age, gender, occupation, education, and purpose of using mobile banking services. The researcher included the participants' demographic profiles to analyze the study's objectives. The researcher presents 168 returned questionnaires for the study, and the Respondents information is summarized below.

#### 4.1.2.1 Respondents Age Profile

On the basis of age, customers are categorized as those who have participants between the ages of 16–22, 23–32, 33–42, 43, and above. The classification of the respondents by age in terms of number and percent is shown in Table 3.

**Table 3**

*Age of Respondents*

Age	Respondents Age	Percentage
16-22	21	12.5%
23-32	73	43.45%
33-42	54	32.14%
43 and above	20	11.9%
Total	168	100%

Source: Survey Data, 2024

Table 3 shows Respondents age profile of various age groups who access mobile banking services. The data shows that the majority of age groups who use mobile banking services are in the age group of 23–32, with 73 respondents covering 43.25% of total respondents, followed by the age group of 33–42, with 54 respondents covering 32.14%, the age group of 16–22, covering 12.5% with 21 respondents, and 11.9% with respondents 20 by age group of 43 and above, respectively.

#### 4.1.2.2 Respondents Gender

The table 4 shows the respondents profile according to gender. The classification of respondents by gender according to the number and percentage is shown as follows:

**Table 4***Gender of Respondents*

<b>Gender</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Male	96	57.14%
Female	72	42.85%
Total	168	100%

Source: Survey data, 2024

Table 4 shows the respondents gender profiles, showing that the majority of the respondents who use mobile banking services were males, with 96 respondents covering 57.14% and females, with 72 respondents covering 42.85%, respectively. However, differences in responses had no substantial impact on the data obtained, which could result in biased statistics.

**4.1.2.3 Respondents Occupation**

The table shows the respondents profiles in terms of occupation. The classification of respondent occupations according to number and percentage is shown as follows:

**Table 5***Occupation of Respondents*

<b>Occupation</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Salaried	36	21.42
Service	67	39.88
Self-employed	29	17.26
Students	23	13.69
Others	13	7.74
Total	168	100%

Source: Survey Data, 2024

Table 5 shows the occupation profile of respondents, showing that the majority of respondents were involved in service, with 67 respondents covering 39.88%, followed by salaried, with 36 respondents covering 21.42%. Similarly, self-employed respondents covered 17.26%, students 13.69%, and others 7.74%. The data shows that the highest

respondents during the survey were found to be from services and the lowest to be from others.

#### 4.1.2.4 Respondents Education

The table shows the respondents profiles in terms of education. The classification of respondent education according to number and percentage is shown as follows:

**Table 6**

*Education of Respondent*

<b>Education</b>	<b>No. of Respondents</b>	<b>Percentage</b>
SLC	4	2.38%
+2	33	19.64%
Bachelors	71	42.26%
Masters	60	35.71%
Total	168	100%

Source: Survey data, 2024

The table 6 shows the respondent education profile and shows that the majority of the respondents were educated up to the Bachelors level, with 71 respondents covering 42.26%, followed by masters with 60 respondents covering 35.71%, +2 with 33 respondents covering 19.64%, and SLC with 4 respondents covering 2.38% of total respondents. The data shows that the majority of the people using mobile banking services from sample commercial banks were highly educated.

#### 4.1.2.5 Purpose of Using Mobile Banking Services

The table shows the responses of respondents for the purpose of using mobile banking services. The responses were in numbers, and the percentage is shown as follows:

**Table 7***Purpose of Using Mobile Banking Services*

<b>Purpose</b>	<b>No. of Respondent</b>	<b>Percentage</b>
Check Balance	0	0%
Fund Transfer/Payment	0	0%
Check Statement	0	0%
All of the above	168	100%
Total	168	100%

Source: Survey data, 2024

The purpose of using mobile banking services from the table 7 shows that only checking balance, fund transfer/payment, and check statement were found to be at 0%, and all three purposes, depending on their needs, were found to be 100%, which means all 168 respondents used mobile banking services for all three purposes (check balance, fund transfer/payment, and check statement).

#### **4.1.3 Descriptive Statistics**

Descriptive statistics were used to indicate the mean and standard deviation of each scale item, as well as the overall variable. It presents a summary of the data in terms of mean, standard deviation, and other metrics. Descriptive statistics allow us to effectively simplify huge amounts of data related to these variables.

In addition, five-point Likert scale questions were asked to the respondents, which ranged from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree) for all variables in the survey research. The number of respondents (N) in each question item was 168. Questions related to each variable and their descriptive statistics are shown below, which show the agreement level of the respondents.

**Table 8****4.1.3.1 Descriptive Analysis of Risk**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
When transaction error occurs, I worry that I cannot get compensation from bank.	168	4.24	0.53
I'm worried to use mobile banking because other people may be able to access my account.	168	3.96	0.43
I would not feel totally safe providing personal privacy information over mobile banking of bank.	168	3.87	0.47
Using mobile banking is risky.	168	4.00	0.52
Aggregate mean	168	4.02	0.49

Source: Survey data, 2024

Table 8 shows that the statement “When transaction error occurs, I worry that I cannot get compensation from the bank” has the highest mean score, i.e., 4.24, and a standard deviation of 0.53. Similarly, the statement “I would not be totally safe providing personal privacy information over mobile banking at a bank” has the lowest mean score, i.e., 3.87, and a standard deviation of 0.4. The aggregate mean of the responses of the respondents is 4.02, and the standard deviation is 0.49.

**Table 9****4.1.3.2 Descriptive Analysis of Benefit**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
I think that using mobile banking would enable me to accomplish my banking tasks more quickly.	168	4.15	0.46
I think that using mobile banking would make it easier for me to carry out my tasks.	168	4.01	0.38
Using mobile banking would reduce the time I spend on activities.	168	3.96	0.45
Mobile banking would address my banking related needs.	168	3.92	0.43
Aggregate Mean	168	4.01	0.43

Source: Survey Data, 2024

Table 9 shows that the statement “I think that using mobile banking would enable me to accomplish my banking tasks more quickly” has the highest mean score, i.e., 4.15, and a standard deviation of 0.46. Similarly, the statement “Mobile banking would address my banking-related needs” has the lowest mean score, i.e., 3.92, and a standard deviation of 0.43. The aggregate mean of the responses of the respondents is 4.01, and the standard deviation is 0.43.

**Table 10****4.1.3.3 Descriptive Analysis of Mobile Banking Services**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Mobile banking is faster than visiting a bank.	168	4.27	0.51
Mobile banking is less time consuming than other banking option.	168	4.01	0.38
Mobile banking is more accessible than visiting a bank.	168	4.03	0.48
Mobile banking is effortless than other banking services.	168	4.04	0.38
Aggregate Mean	168	4.08	0.43

Source: Survey Data, 2024

Table 10 shows that the statement “Mobile banking is faster than visiting a bank” has the highest mean score, i.e., 4.27, and a standard deviation of 0.5. Similarly, the statement “Mobile banking is less time-consuming than other banking options” has the lowest mean score, i.e., 4.01, and a standard deviation of 0.38. The aggregate mean of the responses of the respondents is 4.08, and the standard deviation is 0.43.

#### 4.1.4 Correlation Analysis

Correlation analysis is a statistical tool that assesses the strength of a linear relationship between two variables. Correlation analysis determines the degree to which one variable changes as a result of another. A high correlation indicates a strong association between two variables, whereas a low correlation indicates that the variables are loosely associated.

To measure the extent of relationship between independent and dependent variable, Pearson correlation has been used. The variables of the study are Risk, Benefit and Mobile Banking Services. Risk and Benefit being independent variable and Mobile Banking Services being dependent variable.

**Table 11**

Correlation Analysis Between Risks and Benefits with Mobile Banking Services

		Risk	Benefit	Mobile Banking Service
Risk	Pearson correlation	1		
	Sig. (2-tailed)			
	N	168		
Benefit	Pearson correlation	.256**	1	
	Sig. (2-tailed)	<.001		
	N	168	168	
Mobile Banking Service	Pearson correlation	.150	.310**	1
	Sig. (2-tailed)	.052	<.001	
	N	168	168	168

\*\* . Correlation is significant at the 0.01 level (2-tailed)

Source: Survey data, 2024

Table 11 displays the Pearson correlation coefficient between the studied variables. The r value is 0.150, which indicates there is a low correlation between risk and mobile banking services. Furthermore, the p value is 0.052, which is greater than 0.01. It indicates that risk and mobile banking services have a statistically insignificant association. Similarly, the r

value is 0.310, which indicates there is a medium correlation between benefits and mobile banking services. Furthermore, the p value is 0.001, which is less than 0.01. It indicates that benefits and mobile banking services have a statistically significant association. Similarly, the correlation coefficient between risk and benefit is 0.256, and its p value is less than 0.01, indicating a significant association between them.

#### 4.1.5 Regression Analysis

Regression analysis is used to determine the relationship between multiple independent variables and a single dependent variable. This method of analysis allows researchers to demonstrate how much of the variation in the dependent variable can be explained by a set of independent factors. It encompasses a wide range of strategies for describing and assessing diverse variables when the emphasis is on the relationship between a dependent variable and one or more independent variables. Furthermore, regression analysis demonstrates how the typical value of the dependent variable varies as one of the independent factors is changed when the other independent variables remain constant.

**Table 12**

Model Summary of Independent Variables on Mobile Banking Services

Model	R	R square	Adjusted R Square	Std. Error of Estimate
	.319 <sup>a</sup>	.102	.091	.2627

a. Predictors: (Constant), Risk, Benefit

b. Dependent Variable: Mobile Banking Service

Source: Survey data, 2024

Table 12 indicates  $R = 0.319$ , indicating a relatively favorable association between the independent variables and mobile banking services. The R-square, also known as the coefficient of determination, is shown in the model summary and can be used to explain variation. The R-square value is 0.102, means that risks and benefits account for 10.2% of the variation in mobile banking services.

Likewise, the adjusted R-square is 0.91, indicating that independent variables explain 9.1% of the variation in mobile banking services after managing for degrees of freedom (DF). The model summary also includes the standard error of the estimate of 0.2627, which demonstrates the variability of the value of mobile banking services based on the regression line of 0.2627 units.

**Table 13**

ANOVA Analysis of Independent Variables and Mobile Banking Services

Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	1.289	2	.644	9.334	0.05
Residual	11.390	165	.069		
Total	12.678	167			

a. Dependent Variable: Mobile Banking Service

b. Predictors: (constant), Risk, Benefit

Source: Survey data, 2024

Table 13 indicates an F-stat value of 9.334 with a 5% significance level due to a P-value of <0.05. This suggests that the overall model is a good fit and that there is a statistically significant relationship between the independent variables and the dependent variable.

**Table 14**

Beta Coefficient of Independent Variables with Mobile Banking Service

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	2.583	.363		7.116	<.001
R	.064	.064	.075	.987	.325
B	.312	.082	.291	3.813	<.001

a. Dependent Variable: Mobile Banking Service

Source: Survey data, 2024

Table 14 shows that the coefficient of risk was 0.064. It means that a rise in one unit of risk equals an increase in 0.064 units of mobile banking services, and vice versa. The coefficient of benefit is 0.312. It suggests that an increase in one unit of benefit equals an increase in 0.312 units of mobile banking services, and vice versa.

The p-value of risk is 0.325, which suggests an insignificant impact of risk on mobile banking services. The p-value of the benefit is <0.001, which shows a significant impact of the benefit on mobile banking services.

The standardized coefficient is expressed in units of the standard deviation. A beta value of 0.075 shows that changing one standard deviation in the independent variable, risk, causes a 0.075 standard deviation rise in the dependent variable, mobile banking services. A beta value of 0.291 shows that a one-standard deviation rise in benefit leads to a 0.291 standard deviation increase in mobile banking services.

The table shows beta for all of the independent variables included in the study to analyze their influence on mobile banking services. Because the beta of benefit is the greatest, 0.312, it has the most significant impact on mobile banking services.

Subsequently the multiple regression equation is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2$$

$$\text{Mobile banking services} = 2.583 + 0.064(X_1) + 0.312(X_2)$$

where,

$X_1$  = Risks

$X_2$  = Benefits

## 4.2 Discussion

The main objective of the study is to determine the risks and benefits associated with advanced mobile banking services in Nepal. The study concludes that there is a positive correlation between risks and benefits with mobile banking services. The relationship between risks and mobile banking services shows an insignificant association, and the relationship between benefits and mobile banking services shows a significant association. Similarly, there is a significant association between risks and benefits. Furthermore, the study shows an insignificant impact of risks on mobile banking services and a significant impact of benefits on mobile banking services. The research concludes that benefits have the most dominant influence on mobile banking services.

This study is consistent with the findings of Maharjan (2020), as the researcher concluded that there is an insignificant influence between perceived risk and mobile banking services, as supported by Subedi (2021), where the researcher concluded that there is no significant influence between security and intention to use mobile banking. Inan et al. (2023) findings are also consistent with the finding that perceived usefulness indeed has a significant effect on the continued usage of mobile banking. Farah and Hasni (2018) findings are consistent with the study, where they concluded that most of the predictions of intention, including perceived value, performance expectancy, perceived risk, and trust, are significant. Arcand and Promtep's (2017) findings show trust significantly and positively impacts commitments. This study shows contradiction with the findings of Pun (2018), which show that electronic channels (ATM cards and mobile banking) negatively and insignificantly impact the financial performance of banks in terms of ROA and ROE.

The study also supports the technology acceptance model theory, as the theory concludes that perceived usefulness, perceived credibility, and perceived ease of use were found to have a substantial impact on customers' attitudes regarding mobile banking usage. The reason for the similarity of our findings with those of other researchers is because of the similar findings in terms of correlation and regression. Due to methodology differences and variables under study, the findings were in contradiction with those of the researchers. From the overall study, it was found that benefit is a more satisfactory variable and risk is less favorable because of fear in terms of financial loss and personal privacy.

## CHAPTER V

### SUMMARY AND CONCLUSION

#### 5.1 Summary

Mobile banking is a digital banking service that allows customers to access their bank accounts and conduct transactions using their mobile devices. It is a relatively new phenomenon, only becoming widely available in recent years. However, it has swiftly become one of the most popular banking techniques, influencing how individuals engage with their institutions. Mobile banking apps are a prominent target for fraudsters for obvious reasons. These apps frequently contain sensitive information, such as account numbers and personal identification numbers, which can be exploited to steal money or perpetrate crimes. Mobile banking services enable us to shop, pay bills, and conduct banking transactions using mobile applications. The benefits of mobile banking include 24-hour online support, a wide range of services and activities that can be performed from your phone, paperless transactions, and reduced processing time.

This study is done with the motive of analyzing the risks and benefits of advanced mobile banking services in Nepal. The study will be useful to policymakers, professionals, customers, and banks. To carry out the research, various previously conducted studies and theories were reviewed. The previous study was found to be conducted on service quality, intention to use mobile banking, customer satisfaction with e-banking, and artificial intelligence. It lacks a gap in research in terms of the risks and benefits of mobile banking, which is the focus of our study. This study uses three private commercial banks (Global IME Bank, Nabil Bank, and NIC Asia Bank), which were not previously found as sample sizes for the study. Convenience Sampling was used for the data collection. A descriptive and causal design were employed for the study.

The primary data was used with a structural questionnaire with demographic information as the first part and Likert scale measurements on independent variables and dependent variables as the second part. 200 customers of three commercial banks were given a questionnaire, and a total of 168 responses were used to analyze the data. The data were analyzed using various statistical tools like mean, standard deviation, correlation, and regression analysis with the help of Microsoft Excel and SPSS Statistics. The study concluded that the risks and mobile banking services have an insignificant relationship,

and the benefits and mobile banking services have a significant relationship. Risks have an insignificant impact on mobile banking services, and benefits have a significant impact on mobile banking services. The benefits have the most dominant influence on mobile banking services. It suggests that the greater the benefits, the greater the utilization of mobile banking services, and the greater the risks of mobile banking services, the less the utilization of mobile banking services.

## **5.2 Conclusion**

The research focused on the risks and benefits of mobile banking services in Nepal. According to the findings from the demographic information, the majority of mobile banking users from the respective banks were in the age group of 23–32. Males were found using mobile banking services more frequently than females. The majority of people were from service sectors, and users were educated up to bachelors using mobile banking services. All the respondents utilized mobile banking services for checking balances, fund transfers and payments, and checking statements as the need arose.

From the descriptive analysis of risk, the highest mean is found in the statement when transaction error occurs. I worry that I cannot get compensation from the bank with a mean of 4.24 and a standard deviation of 0.53. The descriptive analysis of the benefit shows the highest mean in the statement. I think that using mobile banking would enable me to accomplish my banking tasks more quickly, with a 4.15 and a standard deviation of 0.46. Similarly, descriptive analysis of mobile banking services shows the highest mean with 4.27 and standard deviation 0.51 in the statement Mobile banking is faster than visiting a bank.

The correlation matrix shows that there is a low correlation between risk and mobile banking services, as their correlation was 0.150. Similarly, there is a medium correlation between benefits and mobile banking services, as their correlation was 0.310. The p-value of risk and mobile banking services is 0.52, which is greater than 0.01, so risk and mobile banking services has insignificant association. The p-value of benefit and mobile banking services is less than 0.01, so benefit and mobile banking services have a significant association.

The regression analysis shows that the p-value of risk is 0.325, which shows an insignificant impact of risk on mobile banking services. The p-value of the benefit is

<0.001, which shows a significant impact of mobile banking services. As a result, this study showed that benefits have a substantial influence on mobile banking services.

### **5.3 Implications**

Based on the study, the researcher forwards the following implications:

- i. Banks and financial institutions should also focus on building awareness initiatives to help customers use mobile banking services more efficiently.
- ii. The study is incredibly valuable to students who want to pursue additional research on related topics.
- iii. Commercial banks might display risk information while entering a mobile banking app to raise customer awareness.

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## APPENDIX

### QUESTIONNAIRES

#### RISKS AND BENEFITS ASSOCIATED WITH ADVANCED MOBILE BANKING SERVICES IN NEPAL

Dear Sir/Madam,

I am a MBS student of Shankerdev Campus and doing research on the above topic. You are kindly requested to complete the given questionnaire. You are expected to choose the answer that you feel closest to. I would like to assure that your personal details and responses will be strictly confidential and used for research papers only.

#### **Section A**

Instructions: Please tick  as appropriate

1. Age

16-22       23-32       33-42       43 and above

2. Gender

Male       Female

3. Occupation

Salaried       Service       Self- employed       Students       Others

4. Education

SLC       +2       Bachelors       Masters

5. Why do you use mobile banking for?

Check balance

Fund transfer

Check statement

All of the above

### **Section B**

For each Statements please check whether you Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)

#### **Risks**

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
When transaction error occurs, I worry that I cannot get compensation from Bank					
I am worried to use mobile banking because other people may be able to access my account					
I would not feel totally safe providing personal privacy information over mobile banking services of bank					
Using mobile banking is risky					

#### **Benefits**

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think that using mobile banking would enable me to accomplish my banking tasks more quickly					
I think that using mobile banking would make it easier for me to carry out my tasks					
Using mobile banking would replace the time I spend on activities					
Mobile banking would address my banking related needs					

### Mobile Banking Services

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Mobile banking is faster than visiting a bank					
Mobile banking is less time consuming than other banking option					
Mobile banking is more accessing than visiting a bank					
Mobile banking is effortless than other banking services					

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ABSTRACT The study deals with risks and benefits associated with mobile banking services, with the objectives of examining the relationship between risks and benefits with mobile banking services and analyzing the impact of independent variables (risks and benefits) on dependent variables (mobile banking services). The study uses a descriptive and casual research design to interpret and analyze the collected data through a questionnaire survey. The customers of the sample commercial banks (Global IME Bank, Nabil Bank, and NIC Asia Bank) were chosen from 200 respondents

by using a convenient sampling method. Descriptive tools like correlation and regression analysis were used to analyze the data. Risks and benefits were used as independent variables and mobile banking services as dependent