

**EFFECT OF ICT ADOPTION ON COMPETITIVE PERFORMANCE OF
COMMERCIAL BANKS IN NEPAL**

BY

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Certification

We, the undersigned certify that we have read and hereby recommend for the acceptance by the School of Management, Tribhuvan University, a Graduate Research Project (GRP) report submitted by Shipra Sharma entitled “The Effect of ICT Adoption on Competitive Performance of Commercial Banks in Nepal”, in a partial fulfillment of the requirements for the award of Master of Business Administration in Information Technology of Tribhuvan University.

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I, Shipra Sharma, declare that this GRP is my own original work and that it had fully and specifically acknowledged wherever adapted from other sources. I also understand that if at any time it is shown that I have significantly misinterpreted material presented to SOMTU, any credits awarded to me on the basis of that material may be revoked.

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Abbreviations

ATM	Automated Teller Machine
ANOVA	Analysis of Variance
BP	Bank Performance
CS	Customer Satisfaction
IB	Internet Banking
ICT	Information and Communication Technology
IT	Information Technology
MB	Mobile Banking
SPSS	Statistical Package for Social Science

Executive Summary

The purpose of this research is to examine the effect of ICT adoption on competitive performance of commercial banks in Nepal. This research mainly undertaken to evaluate and assess the relationship between three independent variables namely; Mobile banking, Internet banking and ATM as well as one dependent variable as customer satisfaction.

This research is quantitative in nature. A survey was done to collect the primary data related to the variables to study the relation between them. For this research study, self-administered questionnaires were distributed over the internet. Data was collected online from 258 respondents. The collected data were pre-processed and necessary analysis was done to fulfill the research objectives. Descriptive analysis and inferential analysis were done in analysis part.

In this study, data collected was analyzed using the software package for statistical analysis SPSS (Statistical Package for Social Sciences) for testing the hypotheses through regression analysis and Pearson product moment correlation.

The inferential analysis shows that all the ICT channels have a positively and statistically significant impact on the performances of commercial banks in Nepal. Among three e-banking channels (mobile banking, internet banking and ATM), most of the customers are using mobile banking. The age of the respondent has no impact on the customer satisfaction and the gender of the respondent has impact on the customer satisfaction.

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Innovation is the nucleus of the present day globalized world. ICT has significantly impacted the economic growth of numerous nations worldwide. Numerous advancements have been made over the years, but information and communication technology is undoubtedly the most notable and well-publicized. Because of technology advancement, raised awareness, and client needs, the business climate of today is extremely dynamic and changes quickly. The banking sector within the twenty-first century, in particular, works in a sophisticated atmosphere marked by these dynamic situations and a very unpredictable financial atmospheres.

ICT refers to a broad range of automated tools that facilitate interaction as well as electronic gadgets for captivating images, computing, and transmitting of data. These technologies cover a wide range of items and services consisting of computer systems, laptops, portable devices, broadband or wireless computer networks, enterprise business applications, facts storage and safety, cybersecurity and many others (Murtaza, 2008).

Customer expectations, operational cost reduction, and competition management are the three main problems that banks are currently facing. Banks can achieve these goals with the use of technology.

All organizations are centered on ICT. It is now a business driver rather than only an enabler. A roadmap for future technology adoption is in some ways defined by the banking and financial services industry, which is always among the first to adopt emerging technologies. Rapid development in ICT consists of a thoughtful impact at the banking enterprise and the varied financial area over ultimate two many years, ICT is now a tool that enables the bank's administrative outline, enterprise tactics and consumer services (Jayamaha, 2008).

The senior management of Nepalese banks now has more visibility and control because of ICT. Along with a greater level of convenience and a broad choice of financial options, it offers a borderless approach. Additionally, it has increased access to banking services and items outside of the local market, particularly for Nepalese living overseas who wish to maintain a banking

association with their native banks in Nepal. Nepalese banks are prepared to offer their clients top-notch services at the moment. There are many channels, including net credit cards and net payments. Almost all financial institutions offer ICT services to their clients at this time.

Due to the accessibility of ICT infrastructure and the accessibility of its products, ICT use within the banking industry has expanded more rapidly than in past years. In western nations like the USA, UK, Australia, and many more, ICT has been used for a very long period of time. Though, the growth of technology in developing nations has become easier due to the easy accessibility to the online networks and other advanced ICT products (Role of Information and Communication Technology in Banking in Nepal, 2021).

In this perspective, Nepal is one of the nations that was late in implementing such innovative technologies in the banking industry. The banking industry in a country like Nepal has traditionally found it difficult to compete in the market by deploying innovative ICT. Nepal has opened its doors to the international market as a member of the WTO. The first bank was introduced in Nepal on November 15th, 1937. Previously that all financial transactions were carried out by mortgage investors without the enforcement of any specific rules or regulations. (Role of Information and Communication Technology in Banking in Nepal, 2021).

Nepal Bank Limited, a commercial bank, was the institution that was founded on that day. After several years of ideation and planning, Nepal Rastra Bank, a central or reserve bank, was established to supervise and guide the country's entire banking system. Today, the leading banks in Nepal are using innovative technology to serve their customers. They use online banking, mobile banking, and ATMs in large cities as their technology (Role of Information and Communication Technology in Banking in Nepal, 2021).

Clients can access their cash whenever they require it by using an ATM. Additionally, the use of both online and mobile banking gives the client elasticity and convenience to keep roadway of their investments and expenses as well as offers the capability of online purchases and payments to the customers. Information and communication technology has contributed in expanding the institution's advantages and automating the organization's regular operations.

The usage of ICT is not deprived of difficulties, particularly in the economies of the global world, including Nepal. These multiple challenges have inspired a variety of studies on Nepalese banks' in adoption of ICT. In this context, Oyewo (2001) claims that the main issues with the usage of ICT include insufficient prerequisites, transaction confidentiality,

failed platforms and services, and the security of funds, amongst others. Since, most of the commercial banks are investing increasingly large sums of money in ICT, it is necessary to analyze the global impact of ICT acceptance on performance of these banks.

The ongoing development of technology within the banking sector and how E-banking provides 24/7 access to quick, safe, and secure banking solutions served as the inspiration for this study. In an information-driven industry like banking, banks who have not incorporated virtual banking suffer a grave competitive disadvantage. This study's focus is on figuring out how ICT adoption has affected the competitive performance of Nepal's commercial banks.

Information and Communication Technology (ICT)

Information and communication technology (ICT) is a broad term that refers to the use of computers, telecommunications, software, and other devices to automate processes, controls, and information generation in order to ensure that operations run smoothly and effectively. It is a word that broadly refers to the integration of electronic technology for a business's information needs at all levels. ICT also includes the techniques and methods required to carry out tasks in a specific situation. The term "information technology," which refers to the technology that enables information, broadly refers to the use of electronic technology to meet all of a business's information needs (Dabwor, 2017).

Information Systems are a critical component of the modern organization, therefore managers cannot ignore them. The use of information and communication technology approach, methods, tactics and employment of alternatives for financial services turned in to a topic of basic implication and relevance to all banking organizations and truly a requirement for native and universal competence. In the banking sector, ICT has a direct impact on managers' decision-making, planning, and delivery of products and services. In order to increase the efficiency and elegance of service transport, it has maintained in changing how banking organizations and their business connections are formed overseas (Wiredu, 2020).

The evolution of the internet and improvements in information and communication technology have modernized corporate operations by enabling new forms of trade known as electronic commerce (Zwass & Turban, 2003).

Particularly, information and communication technologies (ICTs) are changing many dimensions of world diplomacy, markets, and civilizations. In industrialized countries, corporations, government agencies, and individuals are collaborating to fully acknowledge the revolutionary potential of ICTs in order to enhance social networks, promote economic growth, and improve the quality of service. ICT helps countries connect and control anything easily and efficiently. Globally now the strength of the countries are not just measured in the means of their military strength but also in their ICT advancement. Defining ICT as an integral part of development United Nation has also been actively promoting ICT for development (ICT4D) as a means to bridge divide (Steyn & Jonanson, 2011).

The senior management of Nepalese banks now have more visibility and control because of ICT. With a borderless approach, it also offers a wide variety of financial options and increased convenience. Additionally, it has expanded the availability of banking services and items outside the local market, allowing Nepalese citizens living overseas to maintain financial relationships with their local banks in Nepal. Currently, Nepalese banks are prepared to offer their clients top-notch customer service. Information and communication technologies (ICT) have gained popularity in recent years as the core of the banking industry, and the industry is essential to a healthy economy. The adoption of information and technological advancements in financial sector has given legitimacy to the worldwide transition from manual process banking operations to technology-based banking operations (Yanjuan, 2016).

Landon. D. and Landon .J. (1991) argued that managers must take information systems into consideration because they are crucial to the organization. They focus on the fact that information systems are connected to the cash flow of the majority of Fortune 500 corporations. Almost all the banks nowadays consider the use of information and communications technology ideas, methodologies, guidelines, and improvement initiatives to their core business, and it is actually a requirement for both regional and global competitiveness.

Information and communications technology has a serious influence on managers' decision-making, planning, and the types of products or services that are provided in the banking sector. Ekwonwune and Dike keep claiming that information technology has influenced how banks and their business deals are structured globally and that the range of advanced tools available to improve the speed and quality of service delivery which leads to customer satisfaction.

In response to more experienced users and more competitiveness brought on by the rapid globalization and liberalization of the financial sector, a range of ICT products are now being used more and more in the banking sector of the Less Developed Countries. Automated Teller Machines (ATMs), telephone banking, MICR cheques, electronic fund transfers, data exchange, electronic home and office banking, electronic fund transfers at points of sale, electronic letters of credit, electronic cards, debit cards, electronic cash, electronic bills, local area networks, wide area networks, etc. are some of these products (Agboola, 2006).

Bank's Performance

It is difficult to measure the bank's performance. Different methodologies have been employed by researchers to evaluate the performance of banks in several countries. Bank's Performance can be measured in two ways:

1. Financial Performance

A company's financial health can be determined by evaluating financial performance. These metrics are used to measure how well a business is utilizing its materials to generate profitability and its sources of income. The short-term success determinants of a corporation are typically the focus of financial performance measurement. These metrics are mainly concerned with the company's revenues, profitability, and cash flows.

2. Non-Financial Performance

The development of non-financial indicators for an organization is determined by non-financial performance measurement. These metrics are focused on an organization's long-term success, core values and its overall quality. These metrics are primarily concerned with customer satisfaction and retention, brand growth, employee satisfaction, job satisfaction, organizational capability, market share, etc. It cannot be expressed in monetary terms.

Non-Financial Performance measures is used in this research .i.e. Customer Satisfaction as a dependent variable to measure the performance of the bank.

Non-financial measures are based on the objective of achieving a sustainable competitive advantage, that is obtained from the company's strategy and long-term objectives as well as company's mission and vision statements (Hussain, 2004).

The major purpose of non-financial performance indicators (NFP) is that, unlike financial ones, NFP can highlight the relationship between causes and effects of organizational activities and focus specifically on causes rather than implications (Hussain, 2004).

According to Ittner and Larcker (2000), when businesses begin using non-financial metrics in addition to financial ones, they are better able to convey goals and inspire management to take measures in support of the long-term plan.

According to prior research studies, a company's strategic orientation has a significant impact on how it measures non-financial performance. Nevertheless, the degree of impact will vary based on the sector (Hussain, 2004).

1.2 Statement of the Problem

With the advancement of time, Nepal's banking industry has reached a new level. The advancement of technology made the operation of the banks easier and faster. With time, the public's trust and faith in the financial industry have grown. However, due to evolving dynamics, Nepal's banking industry has been plagued by a number of issues. ICT is being studied for its adoption in banking sectors in many countries in the world.

The majority of the commercial banks in Nepal are attempting to use e-banking to enhance activities and reduce costs. However, they are offering these services even though customers are not familiar with them. Therefore, it is crucial to understand how customers' perceive and intend to use e-banking so that, in the future, both the bank management and the customers can benefit from avoiding cash transactions and receiving better services from the bank. In Nepal, there are numerous banks that offer a variety of ICT services, including ATMs, internet banking, mobile banking, and others, but the public is not yet ready to use them. Even if they have access to internet banking and an ATM card, they are still quite hesitant to use these features. Instead, individuals are still driven to use conventional retail banking through simple check and cash transactions.

In terms of implementing and adopting new technologies, it is a well-known truth that everyone in Nepal is a late adopter. The majority of the nations in Asia and the Middle East have encountered a similar issue. Since Nepal joined the World Trade Organization (WTO) on April 23, 2004 (WTO, 2015), all of its services including banking, government, and other industries should be able to maintain global standards and keep the trust of its customers. The one and

only way for the bank to improve the services is to incorporate new and advanced technology. People are late adopters to new technology and services in every sectors of Nepal. People from Nepal lack access to modern infrastructure and technology in comparison to industrialized nations like Europe and the USA.

The study's challenge is to identify the true situation of the banking system, explain the implications of technological banking on Nepal's commercial banks, and specify what the system should accomplish if it were in alignment with global information.

According to Sukkar and Hasan (2005), Nepal experiences the same global issues that affect developing nations. They 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 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.
- Customers pay expensive connection fees, while banks pay high site-building and management costs. 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.
- Concerns about data and network security as well as privacy issues make people lose faith in products.
- Lack of services and internet awareness, customer are still not confident with using ATM cards, Mobile banking or other online services.

1.3 Objectives of the Study

The general objective of the study was to investigate the impact of ICT adoption on the competitive performance of commercial Banks in Nepal. The specific objectives of the study are as follows:

- To examine the use and development of ICT services in the banking sectors of Nepal.
- To examine the effect of ICT adoption on competitive performance of commercial banking.
- To determine the extent to which ICT has contributed to customer satisfaction and banks performance.

1.4 Scope and significance

The scope of the study would focus on how ICT are being adopted by Customers of the banks. Being a case study, the study is limited to specific company and does not go beyond the commercial banks of Nepal. However, the study would not focus on in-depth technicality of information and communication systems because of the vast nature of it, but rather restricted to only the development and usage of some ICT banking services like Mobile banking, ATM and Internet banking.

The significance of the study can be seen from academic and economic benefits. It would shed light on the changes ICT has brought in the banking sector. How it has created a wave of changes in business practice and management were decisions made now are very different from previous decisions. ICT need to be considered within the banks as it is necessary for their inter-relationship. This study also helps to know about information technology and its importance in banking sector. This study also motivates employees and managers of banks to learn and practice modern form of technology. Similarly, customers can also be benefitted from this study as they would be able to know the various aspect of banking sector and also they would be able to get an insight that these new technologies and innovation help them to carry out their tasks more easily and smoothly.

The study will also point out the necessity for advancements in the use of various information and communication technologies in order to meet consumer demand, fulfill customer preferences, and compete with rivals in the banking sector. The accurate and timely performance of ICT in the banks determines the reliability of customer operation

with the banks. It would also be of benefit to financial institutions in the country and to the government bodies. Also decision makers as well as regulating the industries. In the academic circle, the research would also serve as an important guide in providing a basis for further research, prediction of further outcome and visions can also be postulated on the deployment and development of ICT in banking sector.

In the context of Nepal, most of the people may not aware about the ICT service system. Therefore, this study will help them to get about ICT service available to them. Furthermore, if the bank follows the offered guidelines, this study report will assist it in enhancing its ICT services and competitive performance. Additionally, this research will help students, bankers, aspiring researchers, interns, and the government with the execution of policy-making.

1.5 Hypotheses

Hypotheses is formed based on the literature review and objectives of the concerned subject matter. Alhaliq and AlMuhirat (2016) investigated the level of customer satisfaction with electronic banking services in the Saudi banking industry and revealed that Saudi banks had achieved significant customer satisfaction thanks to better service quality, improved performance, and the ability to enable electronic payments.

Alhori (2006) emphasized the significance of adopting communication technology to boost competitiveness in the Jordanian banking industry. The goal of the study was to show how crucial it is for businesses to develop competitive strategies in order to compete with other businesses.

Al-Abed (2003) revealed the procedure through which a consumer can conduct financial transactions automatically through electric devices without physically visiting the bank is referred to as "electronic banking."

Ling, et al. (2015) highlighted the significance of using Online banking as a practical instrument to improve and enhance customer satisfaction.

Based on these literatures, the following hypotheses have been set for this research.

Hypothesis 1: The adoption of Internet banking has a significant impact on customer satisfaction of commercial banks in Nepal.

Hypothesis 2: The adoption of Mobile banking has a significant impact on customer satisfaction of commercial banks in Nepal.

Hypothesis 3: The adoption of ATM has a significant effect on customer satisfaction of commercial banks in Nepal.

1.6 Limitations of the Study

This study has following limitations:

- Due to ongoing COVID-19 pandemic, most of the research would be carried online.
- This study is focused on only present scenario and performance of bank through e-banking in Nepal.
- The study was limited to competitive performance based on customer satisfaction. These are not the only measures that are used in determining the performance of banks.
- The study has been done with limited volume of population sample and findings of the study cannot be fully generalized and might vary from the bigger sample size.
- The result obtained may not be 100% accurate if the respondent gives false information about them.

1.7 Structure of the Study

This study has been structured into five sections: introduction, related literature and theoretical framework, research methodology, analysis and results and discussion, conclusion and implications. The concluding section of the report comprises of references and appendices.

The first section introduces the major concept ICT in banking and its impact on performance of Nepalese commercial bank which includes the study's background, problem description, goals, and hypotheses, as well as its structure, scope, and significance.

The second section consists of theoretical model, review of past empirical studies and research gap and theoretical framework of the study.

The third section covers the research methods, population and sample, sources and methods of data collection, instrumentations, and data analysis methods.

The fourth section includes presentation and analysis of the data and results.

Finally, the fifth section includes discussion, conclusion and implications.

CHAPTER II

RELATED LITERATURE AND THEORETICAL FRAMEWORK

2.1 Related Literature

This chapter evaluates the literature on information and communication technology and its effect on the performance of the banking sector by considering the views of various scholars. It also explains the influence of ICT adoption on the competitiveness of commercial banks in Nepal by analyzing various dependent and independent variables. Academic journals, books, and electronic websites were all reviewed for this the study of this literature review. Free accessible articles and journals in internet were used for literature search using keywords such as ICT, IT, Banks performance, Customer satisfaction, Competitive advantage etc. The chapter focuses on the study variables and provides supporting literature for the investigation.

ICT and Bank Performance

Various research on the effect of ICT on the bank's performance have been conducted with varying degrees of success. Literature on ICT and BP is quickly expanding (Asia, 2015); (Mensah, 2016); (Dehghan, 2015). However, the majority of research in the literature was conducted in industrialized and developing nations.

Mensah (2016) analyzed the impact of ICT on the performance of 20 chosen rural banks in Ghana between 2011 and 2014 using an annual financial data stream. The effectiveness of the rural banks was significantly impacted by ICT cost efficiency, according to the results of panel data regression. The findings also suggested that the performance of rural banks is not significantly impacted by ICT investment. Therefore, instead of investing in new ICT facilities, rural banks can make better use of their current resources by changing the financial products and services they offer their customers. This will have a greater impact on their performance than making new investments, especially when taking into consideration competition from the rural banking sector.

Agboola (2006) discovered that the adoption of ICT was high across all the banks he surveyed, and that the technologies were evenly distributed between the headquarters and branches of the banks.

Fotoh (2006) stated that there were some differences among ancient and newer developed banks in the degree of automated device adoption; newer developed banks are more automated than the ancient banks.

Agboola (2006) analyzed the way Nigerian banks responded to the use of ICT. He took a representative sample of 36 out of the 89 banks that existed at the time and used impact analysis models and structural analyses to assess the type and extent of innovative technology adoption, the level of employment of the well-known equipment's, and the effect of IT device adoption on banking procedures. The results showed that ICTs had a positive effect on each of the performance indicators, including competitiveness, marketing strategy, increased revenue, accurate prediction, and innovation for overall influence, and interval efficiency, error rate reduction, board choices, and transaction speediness for an associated impacts.

It has taken the shape of online banking, which is currently affecting traditional banking practices in the banking sector. Numerous advantages of online banking allow banks to increase their competitive advantage over rivals while also increasing the value that they provide to customers in the form of improved service offerings (Musa, 2014); (Al-Fahim, 2012).

Osage (2012) carried out research on Kenya's commercial banks' adoption of digital banking. The research outcomes showed that ICT utilization had several advantages but relied on bank services being accessible around-the-clock, which significantly improved service delivery and increased customer satisfaction.

Farrell and Saloner (1985) and Economides and Salop (1992), demonstrated two positive effects of the association between information and communication technology and bank performance. ICT can reduce the banks' operating expenses (the cost advantage). For instance, banks' operations for completing conventional and minimal value added transactions, such as bill payment and balance inquiry processes, are improved and sped up by internet technology. ICT might boost customer transactions within the same network (the network effect). Since the introduction of internet banking and ATMs for the delivery of services and products, ICT has totally revolutionized the environment and the scope of competition in the banking business.

Kariuki (2005) demonstrated the significant effects of ICT on banking operations. He proved that the adoption of electronic banking leads to higher profitability over the long period , but not in the short period because of the opening capital expenditure for the ICT infrastructure

investments. He also provides proof that the use of electronic banking can lead to increased share of the market, a diverse product line, and goods that are specifically designed to meet consumer requirements, all of which ensure that commercial banks are better able to meet customer expectations.

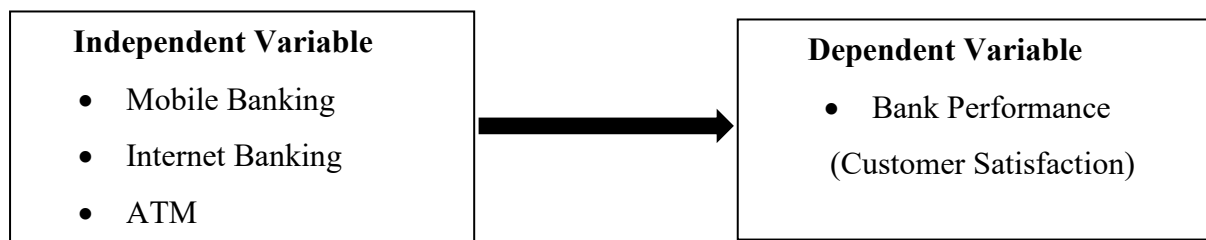
2.2 Theoretical Framework

The goal of this chapter is to create a conceptual framework based on the theoretical framework. Based on the review of literature, the following theoretical framework has been adopted to conduct the study in a proper direction.

This study used three major ICT tools: Internet banking, mobile banking, Automated Teller Machine (ATM) as independent variables and Customer Satisfaction as dependent variables.

Table 2.2.1

Theoretical Framework for the Effect of ICT Adoption on the Competitive Performance of the Commercial Banks of Nepal



Source: (Alhaliq & Almuharat, 2016)

a. Dependent Variable

Customer satisfaction

Mwatsika (2016) defined Customer satisfaction is a state of mind that arises from customers contrasting their pre-purchase expectations with the actual performance of their purchases.

Halstead et al. (1994) stated that customer satisfaction results from customers assessing the performance of the product to a pre-purchase benchmark and is an effective transaction-specific response.

Turunen (2011) defined that the customer satisfaction is defined as the customer's assessment of the service and product provided by businesses and banks when these services and products meet the customer's expectations. However, customer expectations are used to compare service performance, while customer perceptions are the starting point for genuine service experiences. The customer gap is the difference between what the customer expects and what the customer actually experiences, and this difference is what causes the customer to be dissatisfied. As it maintains a strong relationship between businesses and customers, therefore businesses are required to place a major emphasis on customer satisfaction.

Santhiyavalli (2011) stated that service quality is utilized as one of the instruments for competitors to get a competitive advantage by revealing to customer that the products and services provided by banks are not only satisfactory enough but also that they want a better quality of the bank's product.

Hence, in this study, we have taken customer satisfaction as dependent variable for measuring the performances of banks. Among the above three ICT products, which is mostly used and satisfied by customers would determine the level of customer satisfaction as well as bank performances.

b. Independent Variables

Internet Banking

The application of an e-payment system to carry out transactions through a financial company's sites or portals is known as online banking, sometimes known as Internet banking. It is a type of electronic banking that offers virtual banking services. In 2002, Kumari Bank made internet banking available for the first time in Nepal. In Nepal, the introduction of internet banking came quite late. There are still some individuals who have difficulty using the internet. However, current data indicates that digital literacy levels among Nepalese citizens have significantly improved (Internet Banking/Online Banking in Nepal: The Evolution and Future Prospect, 2020).

Even though the majority of banks offer online banking in urban areas, including in major towns like Kathmandu, Pokhara, and Biratnagar, the technology is still in its infancy and is not widely used by bank customers (Pun, 2018). Currently, 111.60 lakh users are involved in internet banking services in Nepal (Current Status of Banking in Nepal, 2021).

There has been considerable discussion in multiple studies on the various aspects that affect the implementation of online banking and how to evaluate its effects on clients' satisfaction and corporate performance. The following related literature has been studied in order to define the research gap for the current study:

Dube (2009) found that online banking is widely used for bill payment, financial transfers, and account balance inquiries, according to the analysis of the acceptance and utilization of online banking by commercial banks in Zimbabwe. They also discovered that users perceive using internet banking to save costs, enhance loyalty, and attract new customers.

Dhekra (2009) also found that the majority of respondents (95%) had internet connection, but just a tiny proportion of them used it as their primary banking channel, according to a study on Tunisia's adoption of electronic banking.

Menson (2007) empirically revealed that the effect of e-banking on the Nigerian economy was discovered that users are comfortable with the system's flexibility and convenience features, including simple and fast transfers and reduced costs.

Carlos (2006) examined how customers' opinions of conventional banking affect their choices to use the internet-based services provided by the same bank and also discovered that customer loyalty in a conventional bank, along with salary, age, and gender of the participants, are the main determinants affecting customer choices to cooperate with a similar bank through the use of the world wide web.

Shrimali (2015) in his research, examined traditional brick and mortar banking with online banking in terms of consumer satisfaction. In his article discussed the impact of internet banking on customer satisfaction and compared with traditional banking brick and Mortar service.

According to Casalo (2007), Banks offer consumers the option to access his/her bank accounts whenever they need, 24*7, using online banking services as an assumption channel that gives customers authority to use the service with several ways.

Mobile Banking

The term "M-Banking" refers to mobile banking. Mobile banking refers to financial operations including examining account balances, transferring money between accounts, or paying bills that are carried out by login into a bank's website using a mobile device. It is a word that describe tasks like checking our account balance, making payments, etc. through the use of a mobile technology like a smartphone. Previous decades has observed a rise in the usage of SMS and mobile internet for mobile banking, while agents, or specialized software, can also be downloaded on a mobile device (Shaban, 2014). M-banking has a great contribution in online banking revolution, which is given a competitive edge to the banks against their rivals.

Traditional banking methods have evolved as a result of mobile payments. As a result of the industrialized nation's well-established infrastructure and advanced technology, industrialized nations adopt mobile banking much more frequently than poor nations. When it comes to financial activities, the introduction of mobile banking has completely transformed people's lives. Financial transactions are becoming easier every day because mobile banking is constantly available in your pocket. As mobile banking services take a completely different approach in industrialized nations, the situation is completely different in poor nations (Sherpa, 2015).

In wealthy nations, mobile banking has been used for a long time. Mobile banking was only recently introduced in poor nations like Nepal in 2012. Laxmi Bank Limited, one of the top commercial banks in Nepal, introduced mobile banking with the introduction of its first product, Mobile Khata. Mobile khata was run on a third-party platform called Hello Paisa that connected to all of Nepal's telecommunications, including Nepal Telecom, Ncell (which is equivalent to Sonera in Finland), UTL, and SmartTel. The service was also accessible with a number of Nepalese financial institutions in addition to these telecommunications.

After Laxmi Bank Limited introduced Hello Paisa, a mobile banking platform, to the nation, other financial institutions including Siddhartha Bank, Bank of Kathmandu, Commerz and Trust Bank Nepal, and International Leasing and Finance Organization also launched mobile wallets using the similar framework. It was regarded to be the first of its type in the entire world to have a network for online payments that is compatible with numerous banking companies and telecommunications.

This sort of service has been launched by several banks in Nepal to facilitate banking operations and utility payment. Services like Hello Paisa and FonePay in Nepal became the primary mobile payment platform. These services provided a platform for other financial sectors to launch mobile banking in Nepal. They were responsible for making it possible to conduct interbank transactions in Nepal and for helping to develop a new payment system in the nation. (Sherpa, 2015). Currently, 1.41 crores users are involved in mobile banking services in Nepal (Current Status of Banking in Nepal, 2021).

Mobile banking services has numerous advantages for both service providers as well as service users, Banks need not to change their infrastructure or prevailing systems or huge sums of money they can easily convey their message to large number of people, m-banking has served as a good platform for banks to maintain good associations with their consumers as banks get valued information about their clients hence they become able to device and implement effective consumer relationship management policies and practices, it also gives quick response and assistance in customer retention and retaining customers loyalty as well (Metlo, 2021).

Baabdullah et al. (2019) found that analysis of the variables influencing the use of mobile banking, or more specifically, the impact of mobile banking service quality on customer satisfaction, is required on both an individual and societal level because the outcomes may result in 'billions' in charges being reduced.

Saleem (2011) explored into the connection between Pakistani mobile banking and customer satisfaction showed that organizational, technological, strategic, functional, and economic aspects had a significant impact on consumer satisfaction. Nepalese economy is growing as the telecommunication industry in Nepal is becoming advanced day by day. Hence, it is worthwhile to critically look at the finding of the Nepalese banking sector.

Based on the rapid changes in the banking industry and high competition between banking and financial institution, the concept of customer satisfaction has become more important. However, the design and delivery of personal financial services are being significantly changed by mobile banking.

ATM

An automated teller machine, also known as a "cash machine," is a type of electronic platform that allows users of financial companies to conduct monetary operations like withdrawing cash, deposits of money, transfer of payments, balance checks, and account details enquiry whenever they prefer often lacking necessity to communicate with a bank employee directly (Automated teller machine, 2021).

Customers can use an ATM to access their bank deposit or credit accounts and perform a number of financial operations, including checking their balances, withdrawing cash, and transferring credit to and from mobile devices. In a foreign country, ATMs can also be used to withdraw money. The funds will be transformed if the currencies getting drawn from the ATM differs from the currency within which the bank details is expressed according to the banking organizations rate of exchange. Clients are usually recognized by embedding a plastic ATM card (or another acceptable payment card) into the Automated teller machine. Authentication is then performed by the user by inputting a personal identification number (PIN), that should match the PIN saved on the card's chip (if it has one) or in the database of the financial institution which issued the card (Automated teller machine, 2021).

The Himalayan Bank deployed the first ATM in Nepal in 1995. It couldn't, however, make a quick transition into how individuals behave. Although ATMs were established, there weren't enough of them available at the time. However, there are now more than 9 ATMs per 1,000 individuals in Nepal, and they are spread around the country in different regions and are owned by numerous banks.

Davis (1996) investigated the variables that affect the quality of the ATM service. They discovered that the expenses involved with using an ATM and the way it operates have had an impact on how satisfied customers are with an ATM.

Shamsuddoha (2005) concluded that the most important variables for customer satisfaction with ATMs are 24 hour service, accuracy, and convenient locations.

Kumbhar (2010) conducted an empirical study to identify the variables influencing ATM service customers' satisfaction. The most crucial elements in determining whether a consumer is satisfied with an ATM service were found to be cost effectiveness, ease of usage, security, and responsiveness.

Davis (1996) focused at the connection between usage rate and performance expectations and long-term customer satisfaction with ATM services. In contrast to performance expectations, which are found to have positive and significant effects on consumers' perceived prolonged satisfaction, the data show that usage rate has a negative association with this perception.

Several empirical research on ATM services and customer satisfaction have been put into practice in various nations. For instance, a research on customer satisfaction with ATM service, a case study of the HSBC ATM was undertaken by Rafiqul (2005) and Islam (2007). In their study on the investigation of customer satisfaction at ICICI bank with particular reference to ATMs, Pohwa et al. (2011) also examined the levels of satisfaction of ICICI bank customers who own ATM cards with regard to several areas of ATM service quality. In his paper *Customer satisfaction in the Banking Industry: A Comparative Study of Ghana and Spain*, A.M (2010) also concentrated on the levels of customer satisfaction in the banking sector.

Customer satisfaction with ATM services has been the subject of several empirical studies. For instance, Saxeam and Pahwa (2009) examined customer satisfaction at ICICI bank with particular emphasis on ATMs in the city of Udaipur. They examined a variety of factors, including the service quality of ATM staff, location, the city's need for ATMs, the frequency with which ATMs operate, the effects of ATMs' operations on overall performance, and the options available to them on numerous other relevant issues. Their research showed that the quality of ATM services was slightly above average, which also led to above average consumer satisfaction.

2.3 Research Gap

Nowadays, banks are aware of the needs of customers who desire new products and services, and they also aim to make these products and services available to them. ICT has enhanced the degree of rivalry between banks and compelled them to adopt new technologies in order to compete and satisfy their clients. ICT is becoming the most crucial component of the banking industry. Banks have significantly affected their business strategies in relations of their operations, the varieties of items, and the services they provide to his/her customers. In order to please clients, banks have incorporated technology into the provision of services on a regular basis.

The theoretical and empirical research that is currently available on ICT (Information, Communication, and Technology) and its effects on the competitive performance of

commercial banks has been examined and synthesized in this chapter. The currently available information reveals that there is a strong connection between technology advancement and the success of financial institutions like banks. This study aimed to fill a knowledge gap among researchers and bank account holders in Nepal by reporting on the history and advancements made over the years in addition to studying them.

Although commercial banks are strategically positioned to incorporate technological breakthroughs, few studies have been conducted to assess how technology has affected the competitive performance of commercial banks. This study is an attempt to address that gap. The researcher needs to specifically focus on banks while examining the precise effects of these technical advancements. The researcher offers suggestions for enhancing ICT banking services in the nation.

CHAPTER III

RESEARCH METHODOLOGY

The approaches and tools that would be used to carry out the study are presented in this chapter. It outlines the target audience, sample design, instruments used to collect data, and processes for conducting the study. Additionally, the variables, measurement, and data analysis methods are also presented in this chapter.

3.1 Research Design

The aim of the study was to ascertain how ICT adoption affected the competitive performance of Nepal's commercial banks. The Central Bank of Nepal surveyed all of the listed commercial banks as part of the study. It is an exploratory type of research. The descriptive research design was chosen to conduct the study because it produces results that are remarkably accurate. Statistical methods and approaches have been used to examine the relationships between the variables.

The survey approach was used for the investigation. A structured questionnaire was designed for the survey and given out to the predetermined sample population to obtain the results. This approach is used because it is economical and quick in gathering vast amounts of data from a large population.

3.2 Population and Sample

The population of the research study is drawn from a representative sample. For the purpose of the study, 258 customers from various Nepalese commercial banks that use ICT services will make up the sample population, and data collection will be done using a simple random sampling technique.

Altogether 13 items and 258 people were selected for this study.

3.3 Sources and Methods of Data Collection

Both the primary and secondary methods of data gathering were intended to be included in the study.

- **Primary Source**

The primary source of data were gathered by distributing structured questionnaires using Google Form to various customers of Nepal's commercial banks. The questionnaire was split into two sections. This made it possible for the researcher to determine the type of clients that a specific bank served. The second portion of the study focused on information, communication, and technology (ICT) and its effects on the performance of Nepal's commercial banks.

- **Secondary Source**

Secondary sources are used to gather secondary data. The information from books, journals, and articles relevant to the study, bank reports, and their websites are the secondary sources of data.

3.4 Instrumentation

Data collection is the process of acquiring factual information to help researchers understand a situation better and to find the answers to the questions that initially motivated their work. A systematic questionnaire including closed-ended, open-ended, and Likert-scale based questions was distributed to clients of Nepal's commercial banks in order to gather primary data.

There were three sections to the questionnaire. The background material was the main focus of the first section. This allowed the researcher to obtain a sense of the types of respondents in the specific bank. The second section focused on the respondents' ICT usage status, and the third part examined the influence of information, communication, and technology (ICT) on the performance of Nepal's commercial banks

The questionnaire was circulated through the internet, 258 responses were collected over the internet from the population who had the access to the internet. The data collection was done over a period of 3 weeks. For the online survey method, Google Form was used for questionnaire, and then the hyperlink was provided to the respondent through emails and social networking sites, like WhatsApp, viber, and messenger.

3.5 Variables and Measurements

Variables used for the analysis include performance measure i.e. Customer Satisfaction and the adoption of ICT by commercial banks. In this research, Non-Financial Performance measure was used in terms of Customer Satisfaction. ATM, internet banking, and mobile banking adoption were used to evaluate ICT adoption.

The first phase of the survey, which is made up of broad questions aimed at identifying the characteristics of respondents, included questions aimed at gathering demographic information from the respondents. Here, demographic characteristics .i.e. age, gender, qualification, and occupation were the headings. Similarly, second part consists of questions to know the status of ICT usage of the respondents.

Finally, section C includes the research's 3IVs—Mobile Banking (MB), Internet Banking (IB), and Automated Teller Machine (ATM) as well as one DV—Customer Satisfaction (CS). According to the target respondents' level of agreement, a 5-point Likert scale was used to measure each variable on an interval scale, ranging from strongly agree(1) to strongly disagree(5). These survey queries were taken from an earlier survey with the intention of examining the influence of ICT adoption on the competitive performance of Nepal's commercial banks.

3.6 Measurement of Reliability

Cronbach's alpha is used to determine whether an item scale is reliable. Cronbach's alpha is determined in this study to assess the reliability of the ATM, internet banking, mobile banking, and customer satisfaction. In general, Cronbach's alpha is regarded as a good indicator of the reliability of the item scale and should be greater than or equal to 0.70.

Here, the dependent variable is Customer Satisfaction and the independent variables are Automated Teller Machine (ATM), Mobile banking and Internet Banking.

Table 3.6. 1

Reliability Test

	Number of Items	Cronbach's Alpha
Mobile Banking	5	0.804
Internet Banking	7	0.877
ATM	5	0.809
Customer Satisfaction	6	0.831

Note: (Source: Survey, 2021)

Above table shows that the reliability of the statistics of the data collected from the questionnaire survey. The value of Cronbach's alpha for mobile banking, internet banking, ATM and customer satisfaction has been obtained as 0.804, 0.877, 0.809 and 0.831 respectively. It suggests the value is reliable to carry the data analysis on.

3.7 Method of data analysis

The data gathered was processed and analyzed using SPSS. Various statistical tools like descriptive statistics, Cronbach's alpha test, correlation and multiple regression analysis were done for the analysis of dependent and independent variables.

a)Descriptive Analysis

Descriptive statistics is used to describe the respondents' demographic features in addition to the dependent and independent variables. To identify sample features and significant trends from the gathered data, the computation has been done by frequency, percentage, mean, and standard deviation.

b)Correlation Analysis

A correlation coefficient is a statistical indicator of how well changes in the value of one variable predict changes in the value of another. It indicates to what extent the variables are associated with each other. Likert scale questionnaire was analyzed using correlation matrix.

c) Chi-square test

It is common practice to utilize the Chi-square statistic to examine correlations between categorical variables. The test was done to study the relation between the Customer satisfaction with age and gender of the respondents.

d) Multiple Regression Analysis

A collection of statistical procedures called regression analysis is used to estimate the relationships between variables. Multiple regression analysis was used as analytical tool because there is more than one independent variable.

The multiple linear regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + e \dots \dots \dots (i)$$

where,

Y = the predicted or expected value of the dependent variable

X₁, X₂, ..., X_n = value of independent variables

α = value of Y when all of the independent variables (X₁ through X_n) are equal to zero (Y- intercept).

β₁, β₂, ..., β_n = the estimated regression coefficient (population slopes)

e_i = factor errors

Based on the above equation, the required multiple regression equation-based model is

$$CS = \alpha + \beta_1 MB + \beta_2 IB + \beta_n ATM + e_i$$

where,

Dependent variable:

Y = CS (Customer Satisfaction)

Independent Variable

$X_1 = \text{MB (Mobile Banking)}$

$X_2 = \text{IB (Internet Banking)}$

$X_3 = \text{ATM (Automated Teller Machine)}$

3.8 Software Used

A survey was carried out for this study using Google Form. The survey data were analyzed and interpreted using SPSS, a statistical tool for social research. After the data was analysed and interpreted, it was documented using Microsoft word.

CHAPTER IV

ANALYSIS AND RESULTS

The chapter deals with data background to have an overview of the surveyed data. The outcomes of the primary data analysis and interpretation that were obtained from questionnaire survey data are presented in this chapter. The demographic profile of the respondents was analyzed descriptively using SPSS, and reliability was tested using Cronbach's alpha as well as correlation and regression analysis. The primary goals of this chapter is to describe the features of the studied variables as well as to present and explain the findings.

4.1 Demographic Profile of the Respondent

Table 4.1

Demographic Profile of the Respondent

	Variables	Frequency	Percentage
Age Group	15-20	29	11.2
	21-25	76	29.5
	26-30	96	37.2
	31-35	23	8.9
	36-above	34	13.2
Gender	Male	124	48.1
	Female	131	50.8
	Other	3	1.2
Highest Qualification	Intermediate	58	22.5
	Bachelor Degree	97	37.6
	Master Degree	88	34.1
	Other	15	5.8
Occupation	Employed	114	44.2
	Self-Employed	60	23.3
	Other	84	32.6

Note: (Source: Survey, 2021)

Table 4.1 shows that, 11.2% of the respondents were between 15-20, 29.5% were between 21-25, 37.2% were between 26-30, 8.9% were between 31-35, and 13.2% were above 36 years. This suggests that there was a fair representation of the population because almost all classes were represented, the data provided conveyed the opinions of the entire population, and the highest percentage of respondents were in the age range "from 26 to 30 years," while the lowest percentage was in the age range "31 to 35 years," at 8.9%.

48.1% were male while 50.8 % were female. This shows that female respondents were participated more than male.

Among the respondents, 22.5% of the respondents were Intermediate, 37.6% were Bachelor, 34.1% were masters and 5.8% were others. This suggests that the respondents are well-educated, which indicates they are able to read, comprehend, and accurately interpret questionnaires. The information gathered was processed in order to produce findings since it was considered to be reliable. 44.2% of the respondents were employed, 23.3% were self-employed, and 32.6% were involved in other categories like student, housewife, etc.

4.2 Status of the ICT usage of the Respondents

Table 4.2

Status of the ICT Usage of the Respondents

	Variables	Frequency	Percentage
How long have you been a customer of the bank?	Less than 1 year	52	20.2
	1-5years	126	48.8
	5-10years	54	20.9
	10years and above	26	10.1
In your opinion, do you think there is any connection between ICT and Customer Satisfaction.	Yes	236	91.5
	No	22	8.5
Which of the following ICT services do you use the most?	Mobile Banking	148	57.4
	Internet Banking	43	16.7
	ATM	67	26.0
The bank updates the ICT banking services.	Yes	221	85.7
	No	37	14.3

Note: (Source: Survey, 2021)

According to survey, most of the respondents were from Nabil Bank Ltd. i.e. 10.5% and the lowest respondents were from Agricultural development bank and Nepal Bangladesh bank Ltd.

Table 4.2 shows that, 20.2% of the respondents were customer of the bank for less than 1 year, 48.8% were for 1-5 years, 20.9% were for 5-10 years, and 10.1% were for 10 years above. Hence, most of the customers were from 1-5 years.

Most of the respondents agreed to connection between ICT and Customer Satisfaction and the percentage is 91.5%.

Among the respondents, 57.4% of the respondents were using Mobile banking, 16.7% were using Internet banking, and 26% were using ATM. This implies that Nepalese commercial bank used electronic ICT services in different ways ranging from mobile banking, ATM, and internet banking service. According to the respondents, Mobile banking is one of the ICT services that bank customers frequently use, which is a positive representation for service delivery to clients and an improvement in banks' performance.

Additionally, the majority of respondents concurred that the bank frequently upgrades its ICT services.

4.3 Descriptive Analysis of Study Variables

Descriptive analysis is a sort of data analysis that helps in describing, displaying, or summarizing sets of data so that patterns may appear that satisfy all of the data's requirements.

It is one of the most essential processes in the analysis of statistical data. It provides us summary of our data's distribution, helps in the detection of errors and outliers, and enables us to spot patterns among various variables, preparing us for future statistical analysis.

The objective of the following section is to present and evaluate the arithmetic means and standard deviations of the study sample's responses to the questionnaire's items with reference to the independent and dependent variables.

4.3.1 Perceptions of respondents on the contribution of Mobile Banking on Performance of bank

Table 4.3.1

Perceptions of respondents on the contribution of Mobile Banking on Performance of bank

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I think ATMs improve the reputation of the bank.	258	1	4	1.73	.775
Geographical spread of the ATMs increases the number of customers	258	1	5	1.66	.760
ATMs increases our trust.	258	1	4	1.89	.808
24 hours business hours for ATMs Increase our Loyalty.	258	1	4	1.68	.754
I become less dependent on the official working hours in the bank by using ATMs.	258	1	4	1.80	.763

Note: (Source: Survey, 2021)

Table 4.3.1 shows the descriptive statistics for the various criteria considered for contribution of ATM on banks performance. It is observed that the statement “ATMs increases our trust” has the highest mean value of 1.89. It suggests that customer trusts the ATM service of the bank and the lowest mean value is 1.66 of the statement “Geographical spread of the ATMs increases the number of customers” This implies that it is the relatively less desired criteria under the ATM service offered by the bank in reference to respondents.

Similarly, the table shows that the statement “ATMs increases our trust” has the highest standard deviation of 0.808. It suggests that the criterion has the most varied opinion of the respondents. Likewise, the statement “24 hours business hours for ATMs increase our Loyalty” has the least standard deviation of 0.754 which suggests that most of the respondents have a similar opinion about the criterion regarding the ATM services of the banks.

4.3.2 Perceptions of respondents on the contribution of Internet Banking on performance of bank

Table 4.3.2

Perceptions of respondents on the contribution of Internet Banking on performance of bank

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I become more satisfied through the transaction with internet banking.	258	1	4	1.57	.710
Payment of the bills (telephone, water, electricity... etc.) through the internet banking has increased our satisfaction.	258	1	5	1.63	.678
Electronic deposit and money transfer have increased our satisfaction.	258	1	4	1.58	.657
Providing electronic banking services has increased the stability of electronic services.	258	1	3	1.71	.659
Privacy, secrecy and safety have increased our trust in transaction with internet banking.	258	1	4	1.74	.783
Display of bank account and balance electronically has increased our satisfaction.	258	1	4	1.72	.699
Continuous communication with bank account holder has increased our loyalty.	258	1	5	1.76	.817

Note: (Source: Survey, 2021)

Table 4.3.2 provides descriptive information for statements made about how Internet banking affects a bank's performance in terms of customer satisfaction. The table shows that the statement “Continuous communication with bank account holder has increased our loyalty” has the highest mean value of 1.76. This suggests that most of the respondents were agreed that continuous communication with banks increased their loyalty. Likewise, the statement “I

become more satisfied through the transaction with internet banking” has the lowest mean of 1.57 which suggests that some of the respondents are not satisfied with doing transactions with Internet banking.

Similarly, the table shows that the statement “Continuous communication with bank account holder has increased our loyalty” has the highest standard deviation of 0.817. It suggests that the criterion has the most varied opinion of the respondents. Likewise, the statement “Electronic deposit and money transfer have increased our satisfaction” has the least standard deviation of 0.657 which suggests that most of the respondents share a similar opinion about the criterion regarding the internet banking services.

4.3.3 Perceptions of respondents on the contribution of Mobile Banking on performance of bank

Table 4.3.3

Perceptions of respondents on the contribution of Mobile Banking on performance of bank

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I feel secure when I receive the messages from bank after financial transaction.	258	1	5	1.55	.711
Sending exchange rate and interest rate through the Mobile banking boosts our trust.	258	1	4	1.91	.768
Sending marketing program for the bank through the Mobile banking has increased the competitive advantage of the bank.	258	1	4	1.89	.798
Using the Mobile banking as a tool for promotion of the banking services have increased our loyalty.	258	1	5	1.94	.844
Sending financial services through the Mobile banking to the customer has increased our trust on the bank.	258	1	5	1.83	.790

Note: (Source: Survey, 2021)

Table 4.3.3 provides descriptive statistics for the arguments made regarding the impact of mobile banking on the performance of the bank in terms of customer satisfaction. The table shows that the statement “Using the Mobile banking as a tool for promotion of the banking services have increased our loyalty” has the highest mean value of 1.94. This suggests that most of the respondents were agreed that mobile banking have increased their loyalty. Likewise, the statement “I feel secure when I receive the messages from bank after financial transaction” has the lowest mean of 1.55 which suggests that some of the respondents are not feeling secured with doing transactions with mobile banking.

Similarly, the table shows that the statement “Using the Mobile banking as a tool for promotion of the banking services have increased our loyalty” has the highest standard deviation of 0.844. It suggests that the criterion has the most varied opinion of the respondents. Likewise, the statement “I feel secure when I receive the messages from bank after financial transaction” has the least standard deviation of 0.711 which suggests that respondents have much similar opinion regarding this criterion.

4.3.4 Perceptions of respondents on the contribution of ICT services and Customer Satisfaction on performance of bank

Table 4.3.4

Perceptions of respondents on the contribution of ICT services and Customer Satisfaction on performance of bank

Statements	N	Min.	Max.	Mean	Std. Deviation
I can rely on bank for not misusing information.	258	1	5	2.07	.877
Reliability on e-banking service of the bank encourages me for using the service.	258	1	5	1.89	.771
Easy to access the e-banking service of the bank satisfies me.	258	1	4	1.79	.685
User-friendly characteristic of ICT service of bank satisfies me.	258	1	5	1.84	.765
ICT Service of the bank is easy to use for me.	258	1	4	1.82	.723
The money transfer becomes more easier for me through ICT banking services.	258	1	5	1.69	.725

Table 4.3.4 shows the descriptive statistics for the various criteria considered for perceptions of respondents on the contribution of ICT services and Customer Satisfaction on the performance of bank. It is observed that the statement “I can rely on bank for not misusing information” has the highest mean value of 2.07. It suggests that customer trusts the ICT services offered by the bank and the lowest mean value is 1.69 of the statement “The money transfer becomes more easier for me through ICT banking services” This implies that it is the relatively less desired criteria.

Similarly, the table shows that the statement “I can rely on bank for not misusing information” has the highest standard deviation of 0.877. It suggests that the criterion has the most varied opinion of the respondents. Likewise, the statement “Easy to access the e-banking service of the bank satisfies me” has the least standard deviation of 0.685 which suggests that most of the respondents have a similar opinion about this criterion.

Similarly, this implies that customers were satisfied with the various ICT services of the commercial banks of Nepal. From the above finding, it is clear that we can conclude that ICT services promotes the competitive performance of Nepalese banks.

4.3.5 Descriptive Statistics of Dependent and Independent Variables

The descriptive statistics for each dependent and independent variable used in this study are shown in this section. Customer satisfaction serves as the study's dependent variable for evaluating bank performance, while ICT channels serve as its independent variable (measured by ATM, IB and MB).

Each dependent and independent variable has a total of 258 observations. All research variables' such as minimum, maximum, means, and standard deviation are included in the descriptive statistics. As a result, Table 4.3.5 provides the summary statistics for all variables.

Table 4.3.5

Descriptive Statistics of Variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ATM	258	1	4.00	1.7512	.58137
IB	258	1	3.43	1.6711	.54383
MB	258	1	3.20	1.8217	.58688
CS	258	1	4.00	1.8508	.55988

Note: (Source: Survey, 2021)

According to Table 4.3.5, the average mean and SD of ATM are 1.7512 and 0.58137 respectively, with a range of 4 as the maximum and 1 as the minimum. Internet banking has an average mean and standard deviation of 1.6711 and 0.54383 respectively, ranging of 3.43 as the maximum and 1 as the minimum. IB is found to have the lowest mean. Then it appears that IB is not used significantly.

On the other hand, it was discovered that Mobile Banking had an average mean and SD of 1.8217 and 0.58688, with a range of 3.20 as the highest and one as the minimum. As a result, across all ICT channels, MB has the highest mean score. According to the data, MB appears to be the most popular e-banking service in Nepal.

Finally, the average mean and SD for CS are 1.8508 and 0.55988, respectively, with a range of 4 as the highest and 1 as the minimum. The table above shows that the majority of consumers are comfortable with internet banking, ATMs, and mobile banking, respectively.

4.4 Correlation Analysis

Pearson correlation coefficient was used to examine the direction and strength of the association between the independent variables (MB, IB, and ATM) and the dependent variable (CS). The Pearson correlation coefficient, symbolized by the symbol r , which ranges in value from +1 to -1, assesses the strength of a linear association between two variables. Both positive and negative correlations between two variables are possible. There is no correlation between the two variables is indicated by a value of 0. A value above “zero” indicates a positive correlation, and a value below “zero” indicates a negative correlation.

To determine whether there was a linear association between the variables of ICT services and banks' customer satisfaction score, the Pearson's coefficient was used. These are the outcomes:

Table 4.4

Pearson's Correlation Coefficient

Variables	CS	MB	IB	ATM
CS	1			
MB	.725**	1		
IB	.632**	.616**	1	
ATM	.631**	.625**	.644**	1

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

Table 4.4 illustrates the correlation between ICT channels and bank performance, with respondents N=258 and a significant level of 0.01, the findings show that ATM is positively related (0.631) with Customer Satisfaction at .000 level of significance (2-tailed), internet banking is positively related (0.632) at .000 level of significance and also mobile banking and customer satisfaction are positively correlated with correlation (0.725) at .000 level of significance. The association between mobile banking and customer satisfaction is the strongest among all relationships between independent and dependent variables.

Therefore, this indicates that all the variables of the ICT channels had a positive correlation with performance of the bank and as the level of significance is zero, it means that this test is statistically significant.

4.5 Chi-square Test

A Chi-square test is the best choice to better understand the association between two categorical variables. The Chi-square test between Customer satisfaction (CS) and Age Group and the Chi-Square test between Customer Satisfaction and Gender of the respondent is determined to find out the actual relationship between them.

4.5.1 Chi-square test between Age group and Customer satisfaction

Table 4.5.1

Chi-square test between Age group and Customer satisfaction

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	52.826 ^a	56	.596
Likelihood Ratio	61.240	56	.294
Linear-by-Linear Association	.054	1	.816
N of Valid Cases	258		

The table above shows that whether there is a significant association between the age of the respondents' and their level of customer satisfaction. The test's p-value is 0.596, which is greater than 0.05. It implies that there is no correlating relationship between customer satisfaction and age group. This suggests that the age of the customer has no effect on their level of satisfaction.

4.5.2 Chi-square test between Gender and Customer satisfaction

Table 4.5.2

Chi-square test between Gender and Customer satisfaction

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.266 ^a	28	.033
Likelihood Ratio	32.152	28	.268
Linear-by-Linear Association	3.498	1	.061
N of Valid Cases	258		

The above table shows whether there is a significant association between the respondent's gender and their level of customer satisfaction. The test's p-value is 0.033, which is less than 0.05. It implies that there is a strong correlation between gender and satisfaction of the customer. This implies that gender has an effect on customer satisfaction in this study.

4.5.3 Chi-square test between Highest Qualification and Customer satisfaction

Table 4.5.3

Chi-square test between Highest Qualification and Customer satisfaction

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	47.715 ^a	42	.252
Likelihood Ratio	51.985	42	.139
Linear-by-Linear Association	.525	1	.469
N of Valid Cases	258		

The above table shows whether there is no significant association between the respondent's qualification and their level of customer satisfaction. The test's p-value is 0.252, which is greater than 0.05. It implies that there is no correlation between qualification and satisfaction of the customer. This implies that qualification has no any effect on customer satisfaction in this study.

4.5.4 Chi-square test between Occupation and Customer satisfaction

Table 4.5.4

Chi-square test between Occupation and Customer satisfaction

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	36.846 ^a	28	.122
Likelihood Ratio	41.407	28	.049
Linear-by-Linear Association	3.302	1	.069
N of Valid Cases	258		

The above table shows whether there is no significant association between the respondent's occupation and their level of customer satisfaction. The test's p-value is 0.122, which is greater than 0.05. It implies that there is no correlation between occupation and satisfaction of the customer. This implies that occupation has no any effect on customer satisfaction in this study.

4.6 Multiple Regression Analysis

The association between the dependent variable of the bank probability (Customer Satisfaction) and independent factors like mobile banking, internet banking, and ATM was examined using a regression analysis model.

The output of the subsequent regression's beta coefficient, which represents each variable's level of influence on the dependent variable, can be either positive or negative. The P-value, also known as the significance value, reveals the percentage or precession level at which each variable is significant. R2 values are used to measure a model's explanatory power, and in this study, adjusted R2 values were derived to assess the models' explanatory power by accounting for the degrees of freedom lost when additional variables were added. The following is the empirical model used in the study to identify the variables that may have an impact on the performance of Nepalese banks, as it is described in the third chapter.

Table 4.6.1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.776a	.601	.597	.35554

Note: a. Predictors: (Constant), MB, IB, ATM

b. Dependent Variable: CS

Table 4.6.1 shows that the model's R-squared statistics and adjusted-R squared statistics were 60.1% and 59.7%, respectively. According to the outcome, 59.7% of the changes in the dependent variable may be attributed to changes in the independent factors. That is why 59.7% of changes in customer satisfaction may be attributed to mobile banking, internet banking, and ATM usage. Other variables beyond the scope of the model accounted for the remaining 40.3%

of the changes. Thus, 258 variables provide a good explanation for how well Nepal's commercial banks perform in terms of customer satisfaction.

4.6.2 Analysis of variance (ANOVA)

Table 4.6.2

Analysis of variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	48.453	3	16.151	127.768	.000 ^b
	Residual	32.108	254	.126		
	Total	80.560	257			

Note: a. Dependent Variable: CS

b. Predictors: (Constant), ATM, MB, IB

Regression result in table 4.6.2 indicates that the independent variables are statistically significant in predicting the performance or affecting the performance of the banks. The study established a significant value of $p=.000$ showing a statistical significance relationship.

4.6.3 ANOVA Test of Age group by ATM, IB and MB

Table 4.6.3

ANOVA Test of Age group by ATM, IB and MB

		Sum of Squares	Df	Mean Square	F	Sig.
ATM	Regression	3.138	4	.785	2.371	.053
	Residual	83.726	253	.331		
	Total	86.865	257			
IB	Regression	1.132	4	.283	.957	.432
	Residual	74.876	253	.296		
	Total	76.009	257			
MB	Regression	1.439	4	.360	1.045	.384
	Residual	87.080	253	.344		
	Total	88.518	257			

Note: (Source: Survey, 2021)

Regression result in table 4.6.3 indicates whether there is significant relationship between age group and independent variables (ATM, IB and MB). The study established a value of $p=.053$, $p= .432$ and $p = .384$ of ATM, IB and MB respectively. The p-value of ATM is equal, it means that there is impact of age group on the ATM. The p-value of IB and MB are greater than 0.05 which indicates that there is insignificant connection between age group and independent variables. Thus, the above table states that there is no impact of age group on internet banking and mobile banking but there is impact of age group on the ATM.

4.6.4 ANOVA test of Gender by ATM, IB and MB

Table 4.6.4

ANOVA test of Gender by ATM, IB and MB

		Sum of Squares	Df	Mean Square	F	Sig.
ATM	Regression	1.511	2	.756	2.257	.107
	Residual	83.354	255	.335		
	Total	86.865	257			
IB	Regression	1.706	2	.853	2.927	.055
	Residual	74.303	255	.291		
	Total	76.009	257			
MB	Regression	1.234	2	.617	1.802	.167
	Residual	87.285	255	.342		
	Total	88.518	257			

Regression results in table 4.6.4 indicates whether there is a significant relationship between Gender and independent variables (ATM, IB and MB). The study established a value of $p=.107$, $p= .055$ and $p = .167$ of ATM, IB and MB respectively. The p-value of ATM, IB and MB are more than 0.05 which shows that there is insignificant association between age group and independent variables.

Thus, the above table states that there is no impact of age group on ATM, internet banking and mobile banking.

4.6.5 ANOVA test of Occupation by ATM, IB and MB

Table 4.6.5

ANOVA test of Occupation by ATM, IB and MB

		Sum of Squares	Df	Mean Square	F	Sig.
ATM	Regression	.733	2	.366	1.084	.340
	Residual	86.132	255	.338		
	Total	86.865	257			
IB	Regression	.603	2	.302	1.020	.362
	Residual	75.405	255	.296		
	Total	76.009	257			
MB	Regression	1.013	2	.507	1.477	.230
	Residual	87.505	255	.343		
	Total	88.518	257			

Regression results in table 4.6.5 indicates whether there is a significant relationship between Gender and independent variables (ATM, IB and MB). The study established a value of $p=.340$, $p= .362$ and $p = .230$ of ATM, IB and MB respectively. The p-value of ATM, IB and MB are more than 0.05 which shows that there is insignificant association between respondents' occupation and independent variables.

Thus, the above table states that there is no impact of occupation on ATM, internet banking and mobile banking.

4.6.6 ANOVA test of Highest Qualification by ATM, IB and MB

Table 4.6.6

ANOVA test of Highest Qualification by ATM, IB and MB

		Sum of Squares	Df	Mean Square	F	Sig.
ATM	Regression	.029	3	.010	.029	.993
	Residual	86.835	254	.342		
	Total	86.865	257			
IB	Regression	.824	3	.275	.928	.428
	Residual	75.185	254	.296		
	Total	76.009	257			
MB	Regression	.890	3	.297	.860	.462
	Residual	87.628	254	.345		
	Total	88.518	257			

Regression results in table 4.6.6 indicates whether there is a significant relationship between respondents' qualification and independent variables (ATM, IB and MB). The study established a value of $p=.993$, $p= .428$ and $p = .462$ of ATM, IB and MB respectively. The p-value of ATM, IB and MB are more than 0.05 which shows that there is insignificant association between respondents' qualification and independent variables.

Thus, the above table states that there is no impact of qualification on ATM, internet banking and mobile banking.

4.6.7 Regression result of CS on MB, IB and ATM

Table 4.6.7

Regression result of CS on MB, IB and ATM

Model		Unstandardized		Standardized		
		Coefficients		Coefficients		
		B	Std.Error	Beta	t	Sig.
1	(Constant)	.330	.081		4.055	.000
	MB	.446	.052	.467	8.595	.000
	IB	.221	.057	.214	3.866	.000
	ATM	.194	.054	.202	3.603	.000

Note: a. Dependent Variable: CS

Regression results in table 4.6.5 indicates that there is a positive association between Customer Satisfaction and ATM as indicates by the beta coefficients of 0.202. Mobile banking and Internet Banking have also positive relationship of 0.214 and 0.467 respectively. So, all banks independent variables has statistically significant impact on Customer Satisfaction.

The conclusion implies the regression's coefficients. According to the outcomes, mobile banking ($p=.000<0.05$), internet banking ($p=.000<0.05$), ATM ($p=.000<0.05$) were all statistically significant in predicting the performances of the banks since all the p values were less than 0.05. Since a low value indicates high significance of the variable and high value indicates no any significance of the variables on the dependent variable.

4.7 Hypothesis testing

The dependent variable (Customer Satisfaction) was regressed on predicting variables of internet banking, ATM, and mobile banking.

The summary of the findings is shown in table below:

Table 4.7

Hypothesis Testing

Hypothesis	Description	Coefficient Value (B)	p-value (≤ 0.05)	Result
H1	The adoption of Internet banking has a significant impact on customer satisfaction of commercial banks in Nepal.	.221	.000	Accepted
H2	The adoption of Mobile banking has a significant impact on customer satisfaction of commercial banks in Nepal.	.446	.000	Accepted
H3	The adoption of ATM has a significant effect on customer satisfaction of commercial banks in Nepal.	.194	.000	Accepted

Table 4.8 shows that for hypothesis H1, the beta value (B) is (0.221) which is positive and the p-value is 0.000, which is less than 0.05. These value states that the hypothesis H1 is accepted and shows that the adoption of internet banking has a significant impact on customer satisfaction of commercial banks in Nepal.

Similarly, the table shows that for hypothesis H2, the beta value (B) is (0.446) which is positive and the p-value is 0.000, which is less than 0.05. These value states that the hypothesis H2 is

accepted and shows that the adoption of mobile banking has a significant impact on customer satisfaction of commercial banks in Nepal.

Finally, the table shows that for hypothesis H3, the beta value (B) is (0.194) which is positive and the p-value is 0.000, which is less than 0.05. These value states that the hypothesis H3 is accepted and shows that the adoption of ATM has a significant impact on customer satisfaction of commercial banks in Nepal.

4.8 Major Findings

The measure finding of the study are summarized as follows:

- Out of the total 258 respondents, 48.1 % were male and 50.8 % were female.
- The age of the respondent has no impact on the customer satisfaction and the gender of the respondent has impact on the customer satisfaction.
- Out of the total respondent, most of the respondents were from Nabil Bank Ltd. i.e. 10.5% and the lowest respondents were from Agricultural development bank and Nepal Bangladesh bank ltd.
- Mobile banking is one of the ICT services commonly used by clients of the bank as the respondents unanimously accept it.
- The majority of participants believed that the bank should upgrade its ICT services and there is also connection between ICT services and customer satisfaction.
- Customer satisfaction is positively correlated with mobile banking, internet banking and ATM.
- The beta value 0.221 and p-value is 0.000, which is less than 0.05 states that the adoption of internet banking has a significant impact on customer satisfaction of commercial banks in Nepal.
- Similarly, the beta value 0.446 which is positive and the p-value is 0.000, which is less than 0.05 states that the adoption of mobile banking has a significant impact on customer satisfaction of commercial banks in Nepal.

- Finally, the beta value 0.194 which is positive and the p-value is 0.000, which is less than 0.05 states that the adoption of ATM has a significant impact on customer satisfaction of commercial banks in Nepal.

CHAPTER V

DISCUSSION, CONCLUSIONS AND IMPLICATIONS

5.1 Discussion

The main goal of the research study was to evaluate the effect of electronic banking on the performance of Nepalese commercial banks. According to the study's results, technology and innovation have a significant impact on Nepalese banks, but they also help them maintain their competitive advantage and boost their financial performance. Customers can now transact using non-cash elements such as Internet banking, credit cards, ATM cards, and SMS banking as banks in Nepal gradually enhance their services in response to customer demand and market competition. Today, commercial bank provides many electronic services to their customers like Mobile banking, ATM, cash withdraw, account balance, bank statement, bill payment, cash deposit, SMS banking, internet banking, telephone banking, point of sales, transfer between banks and remittance etc. this study only focus on three element (Mobile banking, Internet banking and ATM card).

This research study uses correlation and multiple regression analysis to attain the effects of ATM, internet, and mobile banking on the performance of Nepal's commercial banks. The research revealed that all ICT channels have a statistically significant effect on how well Nepal's commercial banks perform. Among three e-banking channels (mobile banking, internet banking and ATM), most of the customers are using mobile banking.

This study relates with Dabholkar (2009) who explained that internet banking enables customers to complete transactions at a convenient location and time. The findings agreed with those of Agboola (2006), who claimed that advanced technologies would have been the primary factor driving competition in the banking sector. The survey found that there has been a significant improvement in the use of several e-banking products. The study found that using contemporary ICT techniques considerably enhances the bank's reputation, which eventually leads to more effective and efficient service delivery and higher customer satisfaction.

Lastly, ICT was found to have a favorable impact on productivity and profitability as well as the speed of delivery of banking services. Agboola (2006) stated that ICTs had a favorable effect on each of the performance indicators, including competitiveness, target markets, higher revenues, prediction of future, and industrialization for a worldwide influence and greater

flexibility, error rate reduction, managerial alternatives, and service efficiency for a profound influence in his research study. Ovia (1997) discovered additional evidence to support the theory that the ICT revolution has caused the banking industry to shift from its conventional method of operation to almost better ones that employ technological advancements to increase the efficiency.

This study examines how ICTs are used in the banking system. The study contributes to the evidence available on the drawbacks and benefits of adopting information and communication technology in the current environment of the Nepal's banking industry. The research may be useful to those recently formed banks in helping them learn more about Nepal's ICT usage in the banking industry. As a result, the study's findings can be applied to other banks, and those banks will be conscious of how ICT usage is now evolving. The consumer can make enhanced practice of the ICTs services offered by the banks by being aware of ICT in the Nepalese banking sector.

Our analysis makes it abundantly clear that improving ICT in the banking sector is essential in a market that is changing quickly, since the ICT revolution has paved the way for a remarkable rise in global monetary activity. The research primarily relates to current stakeholders who have direct access to information and communication technology. This research study will be similarly important for the central bank and other commercial institutions to understand the effects of ICT execution in the banking sectors. Additionally, it facilitates in the formulation of the central bank's policy with reference to its competences. There are numerous gaps in the ICT that affect the information flow between customers, management, and their shareholders. This survey will be helpful in addressing such issues by demonstrating the opinions of both current and potential customers. Along with the organizational perspective, it aids in educating academics about the present state of ICT and its significance in the actual business world of the economy.

5.2 Conclusion

The study came to the conclusion that all ICT channels have a favorable and statistically significant impact on the performance of commercial banks in Nepal. ICT adoption has increased the quality of commercial banks' services. The goal of the study was to ascertain whether the dependent variable, customer satisfaction, and the independent variables, ATM,

mobile banking, and internet banking, were correlated with one another. A variety of inferential analyses were performed to test the hypothesis.

The beta values of internet banking, mobile banking, and ATM are 0.221, 0.446, and 0.194, respectively, and the p-value of above all the e-banking channels are 0.000, which is less than 0.05. So, the performance of Nepalese commercial banks in terms of customer satisfaction is significantly impacted by each of the three e-banking channels used in this research. The outcome demonstrates that the model's R-Squared statistics and adjusted R-Squared statistics were 60.1% and 59.7%, respectively. The findings show that 59.7% of the change in customer satisfaction can be attributed to ATM, internet, and mobile banking. Thus, 258 variables provide a strong explanation for the high level of customer satisfaction obtained by Nepal's commercial banks.

The study reveals that most of the customers are agreed to that the bank updates the ICT services and there is also connection between ICT services and customer satisfaction. The study also shows that among three e-banking channels (mobile banking, internet banking and ATM), most of the customers are preferred to use mobile banking. According to the study's findings, all of the study's hypotheses were found to be positively accepted. Additional research might focus on other banks in Nepal and take into consideration factors like employees performance, job satisfaction, and other factors. The study also demonstrates that the gender of the respondent has an impact on customer satisfaction while the respondent's age has no effect on the customer satisfaction.

In conclusion, this research primarily focuses on the banking services, including various e-banking services that affects the bank performance. It has become extremely difficult for the bank to obtain a competitive edge in order to maintain and increase banks' performance. However, a higher degree of technology within banks, followed by innovative creativity in the products and services the banks offer, as well as meeting client demand, bank performance may be further enhanced.

5.3 Implication of the study

- Nepalese banks should invest more on electronic banking so as to reach more customers electronically.

- Develop and initiate the technology adoption in such a way that they can be adopted in daily routine life.
- Try to reach customers and explain them the new services that are being introduced to the customers.
- The gap between the product familiarity and usage should be reduced and the ways like aggressive marketing, conducting product campaigns, contacting through emails should be developed.
- The banks must provide training to his/her employees on ICT banking services to market a variety of products to the individuals.
- Banks must make sure that any network they are using to render e-banking services to their customers must be strong, stable, effective and efficient, so as uphold the confident of their customers.
- The electronic banking services of Nepalese banks must be safeguarded against external risks like cybercrime.
- Customers' awareness regarding e-banking should be considered while launching electronic banking instrument.

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Appendices

Survey on the Effect of ICT Adoption on Competitive Performance of Commercial Banks in Nepal

Dear Respondent,

I am a student of Masters of Business Administration in Information Technology (MBA-IT) in School of Management, Tribhuvan University. As a partial fulfillment of the requirement for my degree of MBA-IT, I am conducting my Graduate Research Project (GRP) on “The Effect of ICT Adoption on Competitive Performance of Commercial Banks in Nepal”.

This questionnaire is designed to examine how information and communication technology has enhanced the growth of commercial banks in Nepal by measuring bank performance through customer satisfaction and determine the effect of information and communication technology in the process and operation of Nepal banks.

I will be grateful if you provide 5-10 minutes to answer the questions. Your information will be of great importance for my research. I assure that all the information that you have provided will remain confidential and will be used entirely for academic purpose only.

1. Age Group
 - 15-20
 - 21-25
 - 26-30
 - 31-35
 - 36-above

2. Gender
 - Male
 - Female
 - Other

3. Highest Qualification

- Intermediate
- Bachelor Degree
- Master Degree
- Other

4. Occupation

- Employed
- Self-Employed
- Other

5. Name of the Bank :

.....

6. How long have you been a customer of the bank?

- Less than 1 year
- 1-5years
- 5-10years
- 10years and above

7. In your opinion do you think there is any connection between ICT and Customer satisfaction?

- Yes
- No

8. Which of the following ICT services do you use the most?

- Mobile banking
- Internet Banking
- ATM

9. The bank updates the ICT banking services.

- Yes
- No

10. Please rate how do you agree with the following statements: ICT services and automatic teller machine(ATMs).

Strongly Agree=1, Agree=2, Neutral=3, Disagree=4 and Strongly Disagree=5

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I think ATMs improve the reputation of the bank.					
Geographical spread of the ATMs increases the number of customers.					
ATMs increases our trust.					
24 hours business hours for ATMs increase our Loyalty.					
I become less dependent on the official working hours in the bank by using ATMs.					

11. Please rate to what extent do you agree with the following statement : ICT services and Internet banking

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I become more satisfied through the transaction with internet banking.					
Payment of the bills (telephone, water, electricity...etc.)through the internet banking has increased our satisfaction.					
Display of bank account and balance electronically has increased our satisfaction					
Electronic deposit and money transfer have increased our satisfaction.					
Display of bank account and balance electronically has increased our satisfaction					
Continuous communication with bank account holder has increased our loyalty.					
Privacy, secrecy and safety have increased our trust in transaction with internet banking.					

12. Please indicate the level at which you agree with the following statements: ICT Services and Mobile Banking

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel secure when I receive the messages from bank after financial transaction.					
Sending exchange rate and interest rate through the Mobile banking boosts our trust.					
Sending marketing program for the bank through the Mobile banking has increased the competitive advantage of the bank.					
Using the Mobile banking as a tool for promotion of the banking services have increased our loyalty.					
Sending financial services through the Mobile banking to the customer has increased our trust on the bank.					
Sending financial services through the Mobile banking to the customer have increased our satisfaction.					

13. Please indicate to what extent do you agree with the following statement :

Customer Satisfaction

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I can rely on bank for not misusing information.					
Reliability on e-banking service of the bank encourages me for using the service.					
Easy to access the e-banking service of the bank satisfies me.					
User-friendly characteristic of ICT service of bank satisfies me.					
ICT Service of the bank is easy to use for me.					
The money transfer becomes more easier for me through ICT banking services.					