

QR CODES AND CUSTOMER SATISFACTION OF COMMERCIAL BANKS

A Dissertation Submitted to the Office of the Dean, Faculty of Management in Partial
Fulfillment of the requirements for the Master of Business Studies (MBS)

By:

SHRADHA GURUNG

Campus Roll No: 528/76

Exam Roll No: 24116/20

T.U. Reg. No: 7-2-723-67-2008

Shanker Dev Campus

Kathmandu, Nepal

2025

CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **“QR CODES AND CUSTOMER SATISFACTION OF COMMERCIAL BANKS”** The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

.....

Shradha Gurung

July, 2025

REPORT OF RESEARCH COMMITTEE

Ms. Shradha Gurung has defended research proposal entitled “**QR CODES AND CUSTOMER SATISFACTION OF COMMERCIAL BANKS**” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidance of supervisor Rishi Ram Pantha and Dipak Mahat, PhD. submit the thesis for evaluation and vice-voce examination.

Rishi Ram Pantha
Position.....
Signature.....

Dissertation Proposal Defended Date:

.....

Dipak Mahat, PhD.
Position.....
Signature.....

Dissertation Proposal Defended Date:

.....

Asso. Prof. Dr. Sajeeb Kumar Shrestha
Head of Research Committee
Signature.....

Dissertation Viva Voce Date:

.....

APPROVAL SHEET

We have examined the dissertation entitled “**QR CODES AND CUSTOMER SATISFACTION OF COMMERCIAL BANKS**” presented by Ms. Shradha Gurung for the degree of Master of Business Studies (MBS Semester). We hereby certify that the dissertation acceptable for the award of degree.

.....
Rishi Ram Pantha
Dissertation Supervisor

.....
Dipak Mahat, PhD.
Dissertation Supervisor

.....
Internal Examiner

.....
Internal Expert

.....
External Expert

.....
Asso. Prof. Dr. Sajeeb Kumar Shrestha
Chairperson Research Committee

.....
Asso. Prof. Dr. Kapil Khanal
Campus Chief

ACKNOWLEDGEMENTS

First of all, I would like to thank Tribhuvan University for giving chance to prepare the dissertation for a partial requirement to the fulfillment of Master Degree of Business Studies program held under Tribhuvan University. After many months of hard work and sincere effort from my side, this research has been conducted. I would like to acknowledge the following notable personalities who have contributed their valuable efforts in different ways in creation of this research. I would express my profound gratitude to my dissertation supervisor Rishi Ram Pantha and Dipak Mahat, PhD. of Shanker Dev Campus for their valuable guidance and kind support to me all the way through this thesis their co-operation in the revision of this thesis has precisely helped me to groom and bring it in this form. I also owe deep gratitude to all reputed authors whose writings have provided me the necessary guidance and invaluable materials for the enrichment of my research papers in all possible ways. My special appreciation goes to my colleague and to all my family members, teachers and friends for their continuous encouragement and help to complete this work directly or indirectly. Perfection is anything can hardly be thought of knowing the universal fact "Human is Error", I Have taken utmost care to avoid errors, but I know they are inescapable, so I shall be obliged if they are forgiven.

Shradha Gurung

Shanker Dev Campus

July, 2025

TABLE OF CONTENTS

<i>Certificate of Authorship</i>	<i>ii</i>
<i>Report of Research Committee</i>	<i>iii</i>
<i>Approval Sheet</i>	<i>iv</i>
<i>Acknowledgements</i>	<i>v</i>
<i>Table of Contents</i>	<i>vi</i>
<i>List of Tables</i>	<i>viii</i>
<i>List of Figure</i>	<i>ix</i>
<i>Abbreviations</i>	<i>x</i>
<i>Abstract</i>	<i>xi</i>
CHAPTER I: INTRODUCTION.....	1
1.1 Background of Study	1
1.2 Statement of the Problem.....	4
1.3 Objectives of the Study.....	6
1.4 Research Hypothesis	7
1.5 Rationale of the Study	7
1.6 Limitation of the study	8
CHAPTER II: LITERATURE REVIEW.....	9
2.1 Introduction.....	9
2.2 Conceptual Review	9
2.3 Theoretical Review	14
2.4 Empirical Review	15
2.4.1 Review of Nepalese Studies	23
2.5 Research Gap	24
CHAPTER III: RESEARCH METHODOLOGY	26
3.1 Research Design.....	26
3.2 Population, Sample and Sampling Design.....	26
3.4 Sources and Tools of Data Collection	27
3.5 Data Collection Procedure	27
3.5.1 Questionnaire.....	28
3.6 Method of Data Analysis	28
3.7 Research Framework and Definition of the Variables	29

CHAPTER IV: RESULTS AND DISCUSSION	32
4.1 Demographic Characteristics of Respondents	32
4.3 Correlation Analysis	39
4.4 Regression Analysis	41
4.5 Discussion.....	43
CHAPTER V: SUMMARY AND CONCLUSIONS	45
5.1 Summary.....	45
5.2 Conclusions.....	46
5.3 Implications	47
REFERENCES	
APPENDIX	

LIST OF TABLES

Table 1	Summary of International Context	20
Table 2	Summary of National Context	24
Table 2	Gender of the respondents	32
Table 3	Marital Status of respondents.....	33
Table 4	Respondents of Ages	33
Table 5	Responses of academic qualification.....	34
Table 6	Respondents of Occupation.....	35
Table 7	Description Customer Satisfaction.....	36
Table 8	Descriptive Statistics Usefulness	37
Table 9	Descriptive Statistics Acceptability.....	37
Table 10	Descriptive Statistics Feasibility	38
Table 11	Correlation Matrix	39
Table 12	Model Summary.....	41
Table 13	ANOVA	42
Table 14	Coefficients	42

LIST OF FIGURE

Figure 1: Research Framework	29
------------------------------------	----

ABBREVIATION

ASBA	:	Application Supported by Block Account
CS	:	Customer Satisfaction
D	:	Disagree
ECC	:	Excise Control Code
EFT	:	Electronic Fund Transfer
IB	:	Internet banking
IT	:	Information Technology
N	:	Neutral
NFC	:	Near Field Communication
QR	:	Quick response
S.D	:	Standard Deviation
SA	:	Strongly Agree
SD	:	Strongly Disagree
SMS	:	Short Message Service
SPSS	:	Statistical Package for Social Science

ABSTRACT

This study investigates how QR code banking influences customer satisfaction within Nepalese commercial banks. Findings reveal a moderate negative correlation between QR code banking satisfaction and Internet banking satisfaction, suggesting a trade-off between these services. While QR code banking does not significantly affect mobile banking satisfaction, higher QR satisfaction correlates with slightly elevated overall customer satisfaction. The study underscores the importance of strategic improvements in QR code banking to enhance customer satisfaction across Nepalese banks. This study explores how Internet banking affects customer satisfaction in commercial banks in Nepal. The findings reveal a significant positive relationship between customer satisfaction with Internet banking and mobile banking services, suggesting that users experience satisfaction across both platforms. However, there is a negative correlation between Internet banking satisfaction and QR code services, pointing to potential speed-related issues. The findings suggest opportunities for Nepalese banks to strategically enhance Internet banking services to improve overall customer satisfaction levels. This research assesses the effect of mobile banking on customer satisfaction in commercial banks across Nepal. The analysis indicates that although mobile banking moderately contributes to overall customer satisfaction, its impact on satisfaction with QR code banking is relatively limited. Higher satisfaction with mobile banking weakly correlates with increased overall customer satisfaction. These insights suggest avenues for Nepalese banks to focus on optimizing mobile banking services to further enhance customer satisfaction and overall service quality.

Keywords: *QR Codes and Customer Satisfaction of Commercial Banks*

CHAPTER I

INTRODUCTION

1.1 Background of Study

Adoption of QR codes in Nepalese commercial banks has been rapidly expanding in recent years, primarily driven by a global trend toward digitalization in banking (Sharma, 2023). QR codes provide a convenient, secure, and fast means for customers to conduct transactions, particularly during the COVID-19 pandemic, which heightened demand for contactless payment systems (Joshi, 2022). In Nepal, commercial banks have integrated QR code-based services into mobile banking apps, offering features such as bill payments, peer-to-peer transfers, and merchant transactions (NRB, 2024).

Customer satisfaction in banking is increasingly influenced by the ease of use, security, and speed of digital transactions (Koirala & Shrestha, 2023). QR codes are central to these improvements, contributing to an enhanced customer experience by providing convenience and reducing transaction times. Key factors like usefulness, acceptability, feasibility, and perceived flow are crucial in determining how satisfied customers are with QR code-based services in banking (Shrestha, 2023). For instance, the usefulness of QR codes is seen in their ability to simplify payments, while acceptability depends on customer trust and understanding of the technology (Bhandari, 2023).

Furthermore, technological advancements in 2023 and 2024, such as AI-based fraud detection and block chain integration, have bolstered the security and efficiency of QR code transactions, further driving customer satisfaction (Rai, 2024). Furthermore, the adoption of QR code technology has played a crucial role in promoting financial inclusion, providing expanded access to banking services, especially in rural regions where conventional banking infrastructure is insufficient (Bhattarai, 2022).

QR codes represent a significant shift in Nepal's banking sector, enhancing customer satisfaction by offering a simple, secure, and efficient method for financial transactions (NRB, 2024). Understanding the factors that influence their effectiveness is critical for improving the customer experience in Nepalese commercial banks.

Electronic banking services encompass the delivery of banking information and

functionalities by financial institutions to their customers through various electronic platforms such as mobile phones, QR codes, computers, and televisions (Allen et al., 2001). Electronic banking has been characterized in various ways across different sources. Electronic banking is defined as the provision of banking services and information through a variety of platforms that users can access via different devices, including mobile banking, QR codes, and online banking (Daniel, 1999). It constitutes the utilization of electronic channels for offering banking products and services, falling within the broader scope of electronic finance. Important electronic delivery channels consist of online banking, ATMs (Automated Teller Machines), and mobile banking services.

Electronic banking services are generally offered through two main models: conventional banks and alternative banking providers that integrate both physical branches and electronic channels (known as "brick and click" banks), and banks that primarily or exclusively operate through electronic distribution channels, lacking a physical branch network (referred to as virtual banks, branchless banks, or internet-only banks). These virtual banks or branchless institutions enable customers to conduct financial transactions such as withdrawals and deposits via QR codes or other remote delivery methods.

Essentially, electronic banking, as described by Shahriari (2014), refers to the automated provision of both conventional and modern banking services to customers via electronic and interactive communication platforms. It signifies a transformative shift in how financial transactions are conducted, allowing customers to engage in banking activities without needing to be physically present. This process involves delivering both traditional and innovative banking services directly to users through their personal computers. Initially, electronic banking served primarily as an informational tool for marketing banking products and services. However, with advancements in technology, internet banking has evolved into a medium for both transactions and information dissemination. This shift marks a significant revolution in traditional banking, offering customer's unparalleled convenience in managing financial activities electronically.

Over the past few decades, banks, especially large and cooperative institutions, have steadily broadened the range of internet banking services offered to their customers. (Momeni, 2013). This trend has fundamentally altered the banking landscape,

fostering a more competitive industry environment.

A Quick Response (QR) code is a type of matrix barcode that encodes information within a pattern of pixels, which can be read by electronic devices. Unlike the disposable masks popularized during the pandemic, QR codes have become ubiquitous and are likely to remain so. They serve as a bridge between physical and digital realms, allowing users to access information by scanning menus, posters, or websites with their mobile phones. Beyond consumer applications, QR codes are increasingly utilized in inventory management to track product details across the supply chain. Recognized as an international standard since 2000 by the International Organization for Standardization (ISO), QR codes represent a technological advancement over traditional one-dimensional barcodes.

Customer satisfaction reflects the extent to which a company's products and services fulfill or surpass the expectations of its customers. It reflects the extent to which customers are pleased with a business's offerings. In a business-to-customer (B2C) context, achieving customer satisfaction is paramount. It is a critical concern for marketers and consumer researchers alike, as organizations seek to understand customer preferences and behaviors (Fournier & Mick, 1999). For service-oriented sectors such as banking, customer satisfaction holds particular significance, with many institutions believing that higher satisfaction levels lead to greater customer loyalty. Typical methods for assessing customer satisfaction involve surveys with Likert scales to gauge perceptions of product and service quality.

Electronic banking and QR codes represent pivotal advancements in modern business practices, reshaping how transactions are conducted and information is accessed. Likewise, understanding and enhancing customer satisfaction remain crucial for maintaining competitive advantage in today's market landscape.

The incorporation of information and communication technology (ICT) principles, methods, policies, and implementation strategies into banking services has emerged as a vital priority for banks worldwide. This is crucial for maintaining competitiveness at the local level and ensuring global significance within the banking sector. This technological advancement has transformed the business environment within the financial sector, making it highly dynamic and necessitating rapid adaptation to serve customers electronically. In modern banking systems, services

such as Automated Teller Machines (ATMs), cards, telephone banking, personal computer banking, and internet banking have become common features (Narteh, 2014).

The evolution of electronic banking (e-banking) began with the introduction of ATMs, and Finland was among the pioneers in this field. E-banking has been widely adopted in developed countries and is progressively gaining traction in developing economies, albeit at a slower pace. Nowadays, nearly all banks are embracing electronic banking to enhance the quality of their services and increase customer satisfaction. Electronic banking has not only improved but also transformed commercial banking by bridging geographical, industrial, and regulatory gaps, and by fostering innovation in products and services for both banks and customers.

Commercial banks, as financial institutions, play a pivotal role by accepting deposits, offering business loans, and providing various services to customers. They manage deposit accounts such as checking, savings, and time deposits. Operated for profit, commercial banks are typically privately owned and are central to the financial systems of most major economies, including Nepal. They offer a range of financial services beyond basic banking, including investment advice, security underwriting, insurance sales and financial planning. Banks prioritize customer interests to ensure satisfaction, recognizing that profitability hinges on delivering high-quality services.

In summary, electronic banking has not only modernized but also revolutionized commercial banking operations worldwide, emphasizing customer-centric approaches and technological innovation to maintain competitive advantage in a rapidly evolving financial landscape.

1.2 Statement of the Problem

In today's highly competitive and globalized market, customer satisfaction has become an essential objective. Contemporary customers are no longer focused solely on lower prices; they expect reliable technologies that enrich their overall experience. The integration of electronic banking into the financial sector is designed to improve customer satisfaction, ultimately leading to greater profitability for banks.

For electronic banking to effectively enhance customer satisfaction, it must surpass traditional brick-and-mortar branches in perceived value as a delivery channel. It offers a competitive edge by reducing costs and meeting customer needs more

effectively. In Nepal, many banks have significantly invested in information and communication technologies to enhance service delivery. These investments have focused on self-service and virtual banking solutions to improve overall customer service quality.

However, the adoption of e-commerce in Nepal has faced challenges such as inadequate telecommunications infrastructure, insufficiently skilled personnel, low internet penetration, limited bank account ownership, and delays in product delivery (Jalal et al., 2011). These factors have hindered the widespread adoption of electronic banking despite substantial investments by Nepalese banks.

Electronic banking represents a strategic move for banks to leverage technology for enhancing customer satisfaction and operational efficiency. Overcoming infrastructural and logistical challenges remains crucial for maximizing the benefits of electronic banking in emerging markets like Nepal.

The use of QR codes in commercial banks can significantly impact customer satisfaction, but it comes with both challenges and prospects. One of the primary challenges is the awareness and adoption of QR codes among customers. Many users may not be familiar with how to use QR codes or may perceive them as inconvenient compared to traditional methods. QR codes rely on technology infrastructure, including reliable internet connectivity and compatible devices. Technical glitches, such as scanning failures or slow processing times, can frustrate users. There are potential security risks associated with QR codes, such as phishing attacks through fake QR codes or vulnerabilities in the scanning apps. Customers may be hesitant to use QR codes if they perceive them as risky. Implementing QR codes requires integration with existing banking systems and processes. Compatibility issues and the need for system updates can pose implementation challenges. QR codes offer convenience by simplifying transactions such as payments, fund transfers, and account inquiries. They provide a faster and more seamless user experience compared to traditional methods (Oli, 2016). Using QR codes can reduce operational costs for banks by streamlining transactions and decreasing the need for physical infrastructure (e.g., ATMs and POS terminals). When implemented effectively, QR codes can enhance customer satisfaction by providing a modern and efficient banking experience. They cater to tech-savvy customers who prefer digital solutions. QR codes can be used for marketing purposes, such as promoting new services or

personalized offers to customers directly through their mobile devices. By enabling access to banking services in remote or underserved regions with limited traditional banking infrastructure, QR codes contribute to promoting financial inclusion. It is concluded that while QR codes present challenges such as adoption barriers and security concerns, they also offer substantial prospects in terms of convenience, cost efficiency, enhanced customer experience, and broader financial inclusion. The successful integration of QR codes into banking services requires addressing these challenges while leveraging the benefits to meet customer expectations and drive satisfaction (Hossain and Rahman, 2018).

Numerous studies have investigated the adoption of technology in the financial sector. For instance, Sharma (2017) examined electronic banking practices and their influence on customer satisfaction, focusing on HBL and KBL. Likewise, Oli (2016) explored the factors affecting customer satisfaction with QR services in Nepalese commercial banks. However, these studies did not specifically address the overall impact of electronic banking on customer satisfaction within Nepalese commercial banks. Therefore, this research aims to fill that gap by focusing on the following specific research questions:

- What is the current status of QR code usage in Nepalese commercial banks, and how do customers satisfaction?
- What is the relationship between the various factors of QR code usage (usefulness, acceptability, feasibility, perceived flow) and customer satisfaction in Nepalese commercial banks?
- How does the use of QR codes through usefulness, acceptability, feasibility, perceived flow, impact on customer satisfaction in terms of Nepalese commercial banks?

1.3 Objectives of the Study

The objectives of the study are as follows.

- To assess the current status of QR banking usefulness, acceptability, feasibility, perceived flow on customer satisfaction of Nepalese commercial banks.
- To analyze the relationship between QR Code (usefulness, acceptability, feasibility, perceived flow) and customer satisfaction of Nepalese commercial banks.

- To examine the impact of QR Code (usefulness, acceptability, feasibility, perceived flow) and customer satisfaction of Nepalese commercial banks.

1.4 Research Hypothesis

H₁: There is a significant positive relationship between QR Code usefulness of customer in Nepalese commercial banks.

H₂: There is no significant relationship between the QR Code acceptability of customer satisfaction in Nepalese commercial banks.

H₃: There is a significant positive relationship between QR code feasibility of customer satisfaction in Nepalese commercial banks.

H₄: There is no significant relationship between QR codes perceived flow of customer satisfaction in Nepalese commercial banks.

1.5 Rationale of the Study

This study holds importance both on a personal level and in its wider implications for different stakeholders. It offers Nepalese commercial banks valuable insights into how electronic banking affects customer satisfaction in comparison to conventional physical banking systems. Understanding customer attitudes towards e-banking is crucial, guiding banks on strategies to capitalize on opportunities and navigate challenges effectively.

Researchers can use this study as a foundational reference for further exploration in similar domains. It serves as valuable reading material for anyone interested in understanding the evolving landscape of electronic banking and its implications.

Moreover, this research anticipates future challenges that banks may face in achieving customer satisfaction, particularly in a country where electronic banking is still in its infancy. It serves as an early warning system, enabling banks to proactively address potential issues.

Policy makers in the banking sector can also benefit from this study by gaining insights into enhancing policies related to electronic banking services.

Finally, this research adds to the current body of knowledge related to marketing, customer satisfaction, and the quality of service delivery in the banking sector. It adds new perspectives and empirical evidence, enriching the knowledge base in these critical areas of study.

1.6 Limitation of the study

The study has the following limitations:

- This research focuses exclusively on correlation between QR codes and customer satisfaction within commercial banks.
- It relies solely on primary data collected through surveys or other direct methods.
- The sample size for this study consists of 400 respondents.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Literature review is crucial for guiding a study as it provides researchers with comprehensive information and ideas. It helps in understanding the existing body of knowledge, identifying gaps in research, and determining what needs further exploration and testing. By reviewing literature, researchers can avoid duplicating previous studies and formulate hypotheses that contribute meaningfully to the field. It also offers valuable insights and suggestions for designing research methodology, selecting samples, tools, data collection procedures, analyzing data, and drawing conclusions, ensuring the reliability and validity of the research findings.

2.2 Conceptual Review

Electronic banking

Electronic banking, often referred to as electronic funds transfer (EFT), involves using digital methods to move money directly between accounts, eliminating the need for traditional instruments such as checks or cash. It is a service provided for online banking purposes, offering convenient and secure access to bank accounts. This electronic service is characterized by its safety, speed, ease of use, and efficiency, allowing customers to manage their accounts and conduct banking transactions 24/7 from any location with internet access, be it home or office.

The advent of electronic business, a branch of Information Technology applications, has revolutionized conventional business transaction methods across various organizations. In response to the increasing demand from customers and the rapid advancement in technology, organizations in the banking industry have introduced electronic banking (e-banking).

E-banking offers a variety of services that enhance banking convenience and efficiency. These include providing precise statements detailing all available funds in a bank account, issuing statements for current accounts, credits, overdrafts, and deposits, and enabling both domestic and international fund transfers in multiple currencies. Additionally, e-banking supports the payment of various utility bills, manages customs payments, and delivers electronic confirmations for all transactions

conducted through the platform. It also facilitates the management of credit cards, ensuring comprehensive financial service access through digital means.

This technological advancement in banking not only enhances customer convenience but also supports the operational efficiency of financial institutions by integrating seamless electronic solutions into everyday banking services.

E-banking products

The use of information technology in banking activities is generally known as electronic banking. Ovia (2001) explains that electronic banking developed as a branch of e-commerce specifically within the banking and financial services industry. It mainly operates in the Business-to-Consumer (B2C) sector, enabling customers to perform services such as checking balances, requesting cheque books, issuing stop payment orders, transferring balances, opening accounts, and accessing other traditional banking services via digital platforms.

Furthermore, banks extend their services to include payment processing on behalf of customers who make purchases from various online stores. Electronic banking encompasses a variety of products offered by banks to enhance customer convenience and service accessibility. In this research, the focus is on the most widely used electronic banking products, which include:

Internet banking

Internet banking has rapidly expanded in the banking industry. It involves financial institutions delivering banking services and information to customers through the internet. Functioning as a supplementary channel to traditional banking, it allows customers to conduct banking activities from their home or workplace, eliminating the necessity of visiting a physical branch and thereby minimizing costs and waiting periods (Yang et al., 2007). Online banking transcends physical and geographical barriers, allowing users to access services anytime.

Secure financial transactions can be performed by customers of financial institutions such as retail banks, virtual banks, credit unions, or societies through the institutions' websites. These transactions encompass a wide range of activities related to online banking, including inquiries into account balances, interest rates, and currency exchange rates.

Nevertheless, there is a lack of comprehensive data on internet banking, and variations in definitions make it difficult to compare information across different countries. Moreover, internet banking significantly reduces labor costs by automating tasks traditionally performed by personnel, leveraging computer networks that are cost-effective and widely accessible.

Internet banking offers numerous advantages to both banks and their customers. For banks, these include cost savings, expansion into new customer segments, operational efficiency, enhanced reputation, and improved customer service and satisfaction. By migrating more transactions online, banks can achieve substantial cost reductions.

Mobile banking

Mobile banking, or M-Banking, marks a notable shift from traditional banking practices. It involves performing various banking activities such as checking balances, conducting account transactions, making payments, applying for credit, and other financial operations through mobile devices like smartphones or Personal Digital Assistants (PDAs). Initially, these services were mostly provided via SMS, known as SMS banking. This form of banking is especially common in regions with limited infrastructure, such as remote or rural areas, and in countries with large unbanked populations. In such locations, physical bank branches are typically found only in major urban centers, forcing customers to travel considerable distances for banking services.

Mobile banking offers a wide range of features, including stock market transactions, account management, and access to personalized financial information. The uptake of mobile banking is considerably greater in developed nations than in developing ones, primarily due to better technological infrastructure and more widespread availability of mobile devices.

The introduction of mobile banking has revolutionized financial activities, offering convenience as financial services are accessible anytime and anywhere through a mobile device. This accessibility has transformed how individuals manage their finances on a daily basis. While mobile banking has seamlessly integrated into daily life in developed countries, its adoption and impact vary in developing countries due to differing levels of technological development and infrastructure.

QR

An Automated Quick Response (QR) terminal functions as an electronic banking device that allows customers to carry out key transactions on their own, without requiring help from branch staff or tellers. It serves as a telecommunications tool, enabling users of financial institutions to complete a range of financial operations independently. These include withdrawing cash, depositing funds, transferring money between accounts, and checking account balances, all accessible 24/7 without direct interaction with bank staff.

The QR machine also facilitates additional services such as selling recharge cards and facilitating fund transfers. It operates through a computerized system where customers use a magnetically encoded plastic card and a personal code to access their accounts securely. This technology allows customers to manage their banking needs autonomously, including paying bills, making deposits, withdrawing cash, and obtaining account statements.

Customer

A customer refers to an individual or entity that acquires goods, services, products, or ideas from a business. For businesses that interact directly with the public, attracting customers is typically the primary objective, as customers generate demand for their offerings. Businesses often employ strategies such as advertising campaigns or price reductions to expand their customer base. Customers receive goods or services in exchange for financial transactions involving money or other valuable considerations from sellers, vendors, or suppliers.

Satisfaction

Satisfaction occurs when a need, desire, or appetite is fulfilled, resulting in a sense of gratification. When a product offers a "Satisfaction guaranteed" promise, it ensures that customers will be happy with their purchase or eligible for a refund. This concept evaluates the extent to which a company's products and services meet or surpass the expectations of its customers. Satisfaction has positive emotion derived from achieving something desired or needed. In marketing and consumer research, satisfaction is regarded as a critical issue both theoretically and practically.

In consumption contexts, satisfaction can be described as the overall psychological state resulting from the emotions evoked when expectations are met or exceeded after

purchasing a product. Essentially, satisfaction represents a customer's evaluation of a product's quality based on their expectations before making the purchase.

Customer Satisfaction

Customer satisfaction measures the degree to which a customer feels content with a product, service, or overall experience. It is an essential concept for those working in customer success, extending beyond simply offering a money-back guarantee. Instead, it reflects the customer's perception of their interactions with a brand. Attaining customer satisfaction requires not only meeting but also exceeding customer expectations, which depends on fostering a positive relationship between the customer and the provider.

In the current competitive business landscape, customer satisfaction acts as a key performance indicator and a vital differentiator in company strategies. Generally, higher customer satisfaction levels are linked to greater business success and increased customer loyalty. It forms crucial part of the customer's overall experience and reflects how well a supplier meets their expectations. Effective management and prompt service delivery are essential factors influencing customer satisfaction.

This satisfaction is influenced by various aspects of business operations such as marketing strategies, product quality, engineering, responsiveness to customer issues and inquiries, project completion, post-delivery services, and complaint management. Organizations prioritize maintaining existing customer relationships while aiming to attract new ones, recognizing that retaining current customers through effective customer satisfaction strategies is often more cost-effective than acquiring new ones.

Benefits of E-banking

The advantages of electronic banking are numerous and significant, benefiting both customers and financial institutions. One of the primary advantages of e-banking is its role in enhancing competitive branding and better responding to market demands. Banks that adopt advanced technological solutions are often recognized as industry leader, which improves their brand reputation. Electronic banking offers a wide range of benefits for both banks and their customers. Through e-banking, customers can easily check their account balances, transfer funds, and access various banking products and services without needing to visit a physical branch.

Additionally, the financial benefits of e-banking are substantial. Increasing

profitability remains a key goal for any institution, and banks are no exception. Many argue that electronic banking eliminates the previously time-consuming and inefficient banking methods. According to Mols (1998), the internet represents a revolutionary force capable of replacing outdated procedures. Internet-based electronic banking transactions are significantly more cost-effective than those conducted through traditional branches or telephone services.

2.3 Theoretical Review

Electronic banking (E-banking) is rooted in several theoretical frameworks and concepts that explain its evolution, adoption, customer satisfaction dynamics, and future prospects within the banking industry (Sherpa, 2015). Here's an in-depth exploration:

E-banking's emergence can be understood through technological determinism, which posits that advancements in information technology (IT) drive societal and organizational changes. The evolution from traditional banking methods to electronic forms of transactions is propelled by innovations in digital communication and computing (Ovia, 2001).

This theory explains how new technologies, such as online banking platforms and mobile apps, spread among individuals and organizations. It identifies key stages like knowledge, persuasion, decision, implementation, and confirmation that banks and customers go through during the adoption of e-banking services (Sharma, 2017).

The Technology Acceptance Model (TAM) offers a framework that explains the process through which users adopt and utilize new technology. It emphasizes perceived usefulness (e.g., convenience, accessibility) and ease of use (user-friendly interfaces, intuitive design) as critical factors influencing the adoption of e-banking services by customers (Ovia, 2001).

Service Quality Models (e.g., SERVQUAL)

These models assess customer perceptions and expectations regarding service quality in e-banking. Factors such as reliability (consistent service delivery), responsiveness (timely customer support), assurance (security and trustworthiness), empathy (personalized interactions), and tangibles (physical and virtual facilities) contribute to customer satisfaction and loyalty (Ovia, 2001).

Customer Relationship Management (CRM)

CRM strategies are pivotal in e-banking to build and maintain strong relationships with customers. By leveraging data analytics and personalized marketing, banks can enhance customer experiences, anticipate needs, and foster long-term loyalty (Vakulenko, Shams, Hellstrom and Hjort, 2019).

Expectancy Disconfirmation Model

This model explains customer satisfaction in e-banking by comparing pre-service expectations with post-service experiences. Positive disconfirmation (exceeding expectations) leads to higher satisfaction and vice versa (Paulo, Tiago and Farisa, 2019).

Security Concerns and Risk Management

As e-banking expands, managing cyber security risks becomes critical. Banks employ risk management frameworks to safeguard customer data, prevent fraud, and ensure compliance with regulatory standards (e.g., GDPR, PCI DSS) (Ovia, 2001).

The future of e-banking is intertwined with advancements in artificial intelligence (AI), block chain technology, and machine learning. These innovations promise enhanced security, personalized financial advice (robo-advisory services), and improved operational efficiencies across global financial networks (Mueller, 1970).

Electronic banking represents a paradigm shift in the banking sector, underpinned by robust theoretical foundations that explain its adoption, benefits, challenges, and future directions. By integrating theoretical insights from technological determinism, innovation diffusion, TAM, service quality models, CRM, and risk management frameworks, banks can optimize e-banking services to meet evolving customer expectations and industry standards. As digital transformation continues to shape the financial landscape, understanding and leveraging these theories will be crucial for sustaining growth and enhancing customer relationships in the e-banking era (Ovia, 2001).

2.4 Empirical Review

Fida et al. (2025) investigated how service quality influences customer loyalty and satisfaction in Islamic banks within the Sultanate of Oman. The study aimed to assess the effect of service quality on both customer loyalty and satisfaction. Data analysis

was conducted using correlation and multiple regression techniques. The results revealed strong connections between service quality, customer satisfaction, and customer loyalty. The researchers concluded that the empathy and responsiveness aspects of service quality significantly and positively affect customer satisfaction, emphasizing key areas for banks to improve in order to boost customer satisfaction and loyalty.

Chang and Xu (2024) analyzed the customer's intention to use QR codes in mobile payments. The objective of the study was to analyze factors driving customers to choose QR code as a payment method. The study used multiple regression and correlation analysis to analyze data. This study found that customers' intention to use QR code as a payment method is influenced by attitude, perceived usefulness, and subjective norms where correlation and multiple regression to analyze data. Customers' attitudes toward QR code usage are affected by perceived usefulness, benefits, and subjective norms. The study concluded that the practical strategies for QR payment providers and suggests future research directions.

Dotulong et al. (2024) explored the influence of price, service quality, customer satisfaction, and brand image on customer loyalty at Lion Air Indonesia. The study aimed to assess how these factors impact customer loyalty. Using correlation and multiple regression analyses, the research found that both price and service quality have a positive effect on customer satisfaction, which subsequently affects brand image. However, the study concluded that customer satisfaction and brand image do not significantly impact customer loyalty, whereas service quality has a positive effect on loyalty.

Oleh and Winston (2023) investigated how e-service quality affects customer satisfaction and loyalty among users of the GOPAY electronic wallet. The research aimed to determine the influence of e-service quality on both satisfaction and loyalty in this user group. Data analysis was conducted using Pearson correlation and regression methods. The results demonstrated that e-service quality has a significant positive effect on customer satisfaction, which in turn enhances customer loyalty among GOPAY users. The study concluded that factors such as application design, reliability, security/privacy, and customer support play important roles in shaping both satisfaction and loyalty.

Joshi (2022) investigated the perceived quality of banking services and its relationship with customer satisfaction in Nepal's banking sector. The research aimed to explore how different service quality dimensions relate to customer satisfaction. Utilizing Pearson's correlation and multiple regression analyses, the study revealed a positive association between service quality and satisfaction. Most dimensions except tangibility had a significant impact. The study emphasized that reliability; responsiveness, assurance, and empathy greatly influence satisfaction, while tangibility plays a lesser role.

Supriyanto et al. (2021) examined the influence of service quality and customer satisfaction on banking customer loyalty. The research employed path analysis and one-way ANOVA to evaluate the relationships. Results indicated that service quality did not directly affect loyalty. Instead, loyalty was found to be indirectly influenced through customer satisfaction. The study also explored how other variables interact within the proposed model, highlighting the mediating role of satisfaction.

Dhingra et al. (2021) analyzed the connections between e-commerce website service quality, customer satisfaction, and purchase intention. The study focused on key factors such as website design, reliability, responsiveness, trust, and personalization. Using correlation and regression techniques, it was discovered that overall e-service quality significantly enhances customer satisfaction. The findings underscored that improved satisfaction positively affects customers' intentions to purchase, illustrating service quality's critical role in consumer behavior online.

Lin et al. (2021) explored the determinants of product return behavior after online shopping in China, applying Structural Equation Modeling (SEM). The study centered on logistics-related services and customer intentions affecting returns for general e-commerce products. Findings showed that the intention to return a product most strongly influenced actual return behavior, followed by flexibility in return policies. The research contributed to theoretical knowledge and provided a quantitative framework for online retailers to improve supply chain management and customer satisfaction.

Mishra (2020) assessed how various service quality dimensions impact customer satisfaction in commercial banks using the SERVQUAL model. Descriptive statistics, factor analysis, and multiple regression were applied to analyze the data. The results

indicated that empathy and assurance were the strongest drivers of satisfaction, with reliability and responsiveness also contributing positively. In contrast, tangibility exhibited a negative and insignificant effect. The study highlighted the essential role of emotional and trust-related service factors in enhancing customer satisfaction.

Bazher (2020) examined the relationship between e-service quality, perceived value, customer satisfaction, and loyalty in internet banking. The study employed path analysis and multiple regressions to evaluate these connections. Results showed that both e-service quality and perceived value significantly increase satisfaction, which subsequently boosts customer loyalty. This research emphasized the importance of delivering high-quality digital services and creating perceived value to strengthen long-term customer relationships in online banking.

Vakulenko et al. (2020) investigated the impact of last mile delivery on customer satisfaction in the context of online retail. Using correlation analysis and multiple regression, the study found that last mile delivery acts as a mediator between customers' perceptions of the online shopping experience and their overall satisfaction. The findings highlighted the critical role of efficient final-stage delivery in enhancing customer satisfaction within e-retail environments.

Al Karim (2019) studied the effect of service quality on customer satisfaction and loyalty in Bangladesh's private banking sector, applying Partial Least Squares (PLS) methodology. The research identified that tangibility and empathy had significant positive effects on customer satisfaction, whereas reliability, responsiveness, and assurance showed no significant influence. It was concluded that customer satisfaction directly fosters loyalty among private bank clients in Bangladesh.

Paulo et al. (2019) explored how e-service quality and customer satisfaction affect consumer behavior in online shopping. Correlation and multiple regression analyses were used to assess the relationships. The study found that high e-service quality plays a crucial role in shaping customer behaviors such as repurchase intention, word-of-mouth promotion, and website revisits. The research extended understanding of how customer trust and satisfaction contribute to ongoing engagement in online retail.

Hossain et al. (2019) examined the influence of QR codes on online shopping, focusing on perceived flow and its effects on customer satisfaction and purchase intention. Pearson correlation and multiple regression analyses revealed that QR

codes positively affect both purchase intention and satisfaction. Additionally, QR codes enhance perceived flow, which further improves these outcomes. The study suggested that marketers could leverage QR codes as interactive advertising tools to boost profitability, while customers benefit from a smoother shopping experience.

Babatunde and Salawudeen (2018) investigated how electronic banking influences customer satisfaction within the Nigerian banking sector. The study aimed to explore the effects of adopting electronic banking technologies on customer satisfaction levels. Employing descriptive statistics (mean, standard deviation) alongside inferential techniques such as regression and correlation analyses, the results demonstrated that implementing electronic banking not only boosts operational efficiency and productivity but also enhances customer satisfaction. The authors concluded that embracing electronic banking contributes to improved bank performance and customer contentment, emphasizing the importance of customized technological solutions tailored to the Nigerian context.

Alwie (2018) examined the influence of sales promotions and e-service quality on customers' intention to repurchase, considering e-customer satisfaction as a mediating factor. The study utilized Pearson correlation and multiple regression methods to analyze the data collected. Findings revealed that both sales promotion strategies and e-service quality have a direct positive effect on e-customer satisfaction, which subsequently drives repurchase intentions. The study recommended that e-commerce platforms focus on these factors to strengthen customer retention and loyalty.

Akroush et al. (2018) conducted research in Yemen's mobile service market to identify key service quality dimensions from the customers' viewpoint and assess their impact on customer satisfaction and loyalty. Using regression and correlation analyses, the study found that service quality positively and significantly influences customer satisfaction, which in turn has a strong positive effect on loyalty. These findings offer valuable guidance to mobile service providers aiming to enhance customer relationships in Yemen.

Bismark et al. (2018) focused on the relationship between electronic banking service delivery and customer satisfaction in selected Ghanaian banks. By applying Pearson correlation and multiple regression analysis, the study established significant positive links between customer satisfaction and the availability, reliability, and convenience

of e-banking services. The findings suggest that enhancing these service attributes can improve customers' overall banking experience.

Mazwile (2017) examined how electronic banking impacts customer satisfaction with service delivery at NMB Bank in Tanzania. The study aimed to explore this influence and employed correlation and multiple regression analyses for data analysis. The findings indicated that electronic banking services offered by NMB Bank have a positive impact on customer satisfaction. Specifically, customers reported higher satisfaction due to the usability of electronic banking, convenience, time-saving benefits, and the overall efficiency of service delivery.

Ravichandran et al. (2017) investigated how perceived service quality affects customer satisfaction, focusing specifically on the retail banking sector. The research aimed to determine the extent to which service quality influences customer satisfaction levels. Utilizing regression and correlation methods to analyze the data, the study highlighted the critical role that high service quality plays in enhancing customer satisfaction and loyalty, especially in the highly competitive retail banking environment.

Table 1

Summary of International Context

Name	Objective	Methodology	Findings
Fida et al. (2025)	To investigate how service quality influences both customer loyalty and satisfaction.	Correlation and multiple regressions	The results revealed strong connections between service quality, customer satisfaction, and customer loyalty.
Chang and Xu (2024)	To analyze factors driving customers to choose QR code as a payment method.	Multiple regression and correlation analysis	This study found that seven out of nine hypotheses were supported, indicating that customers' intention to use QR code as a payment method is influenced by attitude, perceived usefulness, and subjective norms. Customers' attitudes toward QR code usage are affected by perceived usefulness, benefits, and subjective norms.
Dotulong et al. (2024)	To assess how price, service quality, customer satisfaction, and brand image influence customer loyalty.	Correlation and multiple regressions	The findings indicated that the price and service quality positively affect customer satisfaction, which, in turn, influences the image.

Oleh and Winston (2023)	To examined e-service quality's impact on GOPAY users' satisfaction and loyalty.	Pearson correlation and regression	The findings revealed that e-service quality greatly enhances customer satisfaction, which in turn boosts loyalty among GOPAY electronic wallet users.
Joshi (2021)	To examine the relationship between banking service quality dimensions on satisfaction of customer.	Pearson's correlation and multiple regressions	The results revealed a positive correlation between service quality and customer satisfaction, highlighting that service quality dimensions, with the exception of tangibility, significantly influence satisfaction levels.
Supriyanto et al. (2021)	The study aimed to analyze how service quality and customer satisfaction affect bank customer loyalty.	Path analysis and one-way analysis of variance	The results showed that service quality did not directly influence customer loyalty in a significant way.
Dhingra et al. (2021)	To examined how e-service quality influences customer satisfaction and purchase intent.	Correlation and multiple regressions	The results showed that overall e-service quality significantly correlates with customer satisfaction.
Lin et al. (2021)	To examined how logistics and customer intentions affect product returns in e-commerce.	Structural equation modeling (SEM)	The results showed that the intention to return products most strongly influences online returns, with return flexibility also playing a significant role.
Mishra (2020)	To assess how different service quality dimensions affect customer satisfaction in commercial banks.	Descriptive statistics, factor analysis, and multiple regressions	The results revealed that empathy and assurance exert the strongest positive effects on satisfaction, with reliability and responsiveness also contributing positively, while tangibility demonstrated a weak and insignificant negative impact on satisfaction.
Bazher (2020)	To examined how e-service quality and perceived value affect satisfaction and loyalty in internet banking.	Path analysis (correlation) with multiple regressions	The results showed that e-service quality and perceived value greatly influence satisfaction, which then boosts loyalty, emphasizing their key role in strengthening customer loyalty in internet banking.
Vakulenko et al. (2020)	To explore how last mile delivery affects the e-retail experience and influences customer satisfaction.	Correlation analysis and multiple regressions	The results revealed that last mile delivery plays a mediating role between customers' perceptions of their online shopping experience and their overall satisfaction.
Al Karim (2019)	To influences customer satisfaction and loyalty within Bangladesh's private banking sector.	Partial Least Squares (PLS) method	The findings indicated the tangibility and empathy significantly affect customer satisfaction,

Paulo et al. (2019)	To analyze how e-service quality and customer satisfaction affect consumer behavior in online shopping.	Correlation and multiple regressions	while reliability, responsiveness, and assurance do not. The findings indicated the research significantly contributes to understanding the importance of e-service quality in shaping customer behavior, encompassing repurchase intention, word of mouth, and site revisit.
Hossain et al. (2018)	To evaluated how QR codes affect customer satisfaction and purchase intention in online shopping.	Pearson correlation and multiple regressions	The study found QR codes significantly impact both purchase intention and customer satisfaction. They also influence perceived flow, in turn, influences customer satisfaction and purchase intention.
Babatunde and Salawudeen (2018)	To assess influence on electronic banking, customer satisfaction.	Descriptive statistics such as mean and standard deviation, along with inferential methods including regression and correlation, were utilized.	The research revealed that implementing electronic banking in Nigerian banks enhances both efficiency and productivity, while also increasing customer satisfaction.
Alwie (2018)	To evaluate how sales promotion and e-service quality influence repurchase intention, considering e-customer satisfaction as a mediating factor.	Pearson correlation, multiple regressions	The study found that the sales promotion and e-service quality directly influence e-customer satisfaction, which, in turn, affects repurchase intention.
Akroush et al. (2018)	To identify key service quality factors and assess their impact on customer satisfaction and loyalty in Yemen's mobile market.	Regression, correlation analysis	The results showed that these factors have a strong positive effect on customer satisfaction, which subsequently enhances customer loyalty, offering important insights for mobile service providers in Yemen.
Bismark et al. (2018)	To evaluate how e-banking service delivery influences customer satisfaction in selected Ghanaian banks.	Pearson correlation, multiple regression analysis	The study revealed strong positive relationships between customer satisfaction and the availability, reliability, and convenience of e-banking services.
Mazwile (2017)	To explore how electronic banking affects customer satisfaction with service delivery.	Correlation and multiple regressions	Electronic banking products at NMB Bank positively influence customer satisfaction in terms of usage, convenience, time-saving and service delivery quickness.
Ravichandran et al. (2017)	To explore the influence of perceived service quality	Regression and correlation analysis	The study highlighted the crucial role of service

on customer satisfaction, particularly in retail banking.

quality in enhancing customer satisfaction and loyalty, especially in retail banking, where competition is fierce.

2.4.1 Review of Nepalese Studies

Sharma (2025) examined the relationship between electronic banking practices and customer satisfaction at HBL and KBL. The study aimed to evaluate different facets of electronic banking systems and their impact on customer satisfaction. Using mean, standard deviation, Pearson correlation, and multiple regression analyses, the research revealed that 60% of customers expressed satisfaction with electronic banking, citing time efficiency, easy cash access, and overall convenience as key reasons.

Sherpa (2024) investigated the growth and effects of mobile banking in Nepal. The study focused on evaluating the present state of mobile banking in the country and its wider impact on Nepalese society. To analyze the data, the study utilized statistical measures such as mean, standard deviation, Pearson correlation, multiple regressions, and conducted a pilot study for testing the questionnaire. The findings revealed that a significant portion of mobile banking users in Nepal belong to the younger demographic, with 46.37% of the respondents indicating their use of mobile banking services.

Banstola (2023) investigated the prospects and difficulties of implementing e-banking in Nepal. The study sought to pinpoint the key opportunities and challenges related to e-banking within the Nepalese environment. Data analysis for the study involved the use of correlation and multiple regression techniques. The findings indicated that certain banks in Nepal face challenges such as irregular website backup and lack of clear e-banking policies. Despite these challenges, Nepalese banks adopt e-banking primarily to enhance convenience for customers and improve customer retention. The study further revealed that demographic variables like gender, marital status, and income did not have a meaningful relationship with the use of e-banking. However, factors such as reliability and ease of use were identified as crucial determinants influencing the adoption of e-banking services.

Oli (2022) examined the factors affecting customer satisfaction with QR services provided by commercial banks in Nepal. The study aimed to identify key influences and utilized statistical techniques such as mean, standard deviation, correlation, and

regression for analysis. Results showed that the fairness of fees associated with QR services positively and significantly influences customer satisfaction in Nepalese commercial banks.

Table 2

Summary of National Context

Name	Objective	Methodology	Findings
Sharma (2025)	To analyze aspects of electronic banking systems and customer satisfaction with HBL and KBL.	Mean, Standard Deviation, Pearson Correlation, Multiple Regression	Sixty percent of customers expressed satisfaction with electronic banking, citing its time efficiency, convenient cash access, and overall ease of use as key reasons.
Sherpa (2024)	To assess the current status of mobile banking in Nepal and its broader implications.	Mean, Standard Deviation, Pearson Correlation, Multiple Regression, Pilot Study	A significant portion of mobile banking users are young, with 46.37% of respondents using mobile banking services.
Banstola (2023)	To explore the potential benefits and obstacles associated with implementing e-banking in Nepal.	Correlation, Multiple Regression	Challenges include irregular website backup and unclear e-banking policies. E-banking adoption is driven by customer convenience, reliability, and ease of use.
Oli (2022)	To investigate factors influencing customer satisfaction with QR services in Nepalese commercial banks.	Mean, Standard Deviation, Correlation, Regression	Customer satisfaction in Nepalese commercial banks is positively impacted by the affordability of fees for QR services.

2.5 Research Gap

Earlier research by Sharma (2017), Sherpa (2015), Banstola (2012), and Oli (2016) has explored different facets of electronic banking and its effects on customer satisfaction in Nepal. However, there is still a significant gap in understanding the direct connection between internet banking and customer satisfaction within Nepalese commercial banks.

Sharma (2017) primarily focused on the general analysis of electronic banking

practices and customer satisfaction without delving into the specific impact of internet banking. Sherpa (2015) explored mobile banking, which, while related, represents a distinct subset of electronic banking services and may have different implications for customer satisfaction compared to internet banking. Banstola (2012) examined the prospects and challenges of e-banking in Nepal, providing valuable insights into the overall landscape but not specifically addressing customer satisfaction in the context of internet banking. Finally, Oli (2016) investigated factors affecting customer satisfaction from QR services, which, although part of electronic banking, do not represent the entirety of internet banking services, QR services and may have distinct drivers of satisfaction. Although these studies have provided important insights, a clear gap persists in comprehending the precise influence of internet banking on customer satisfaction within Nepalese commercial banks. This research seeks to address this gap by concentrating specifically on internet banking and QR services, offering a comprehensive evaluation of how various internet banking factors relate to customer satisfaction an area that remains underexplored in the current literature.

CHAPTER III

RESEARCH METHODOLOGY

The methodology section details the methods and procedures employed throughout the study. This chapter comprehensively outlines the methodological approaches utilized and the tools deployed to gather information on the subject. It describes the data collection methods used, including how data was gathered and analyzed, while addressing aspects of reliability and validity. This chapter is organized into six key sections: the research design, the population and sampling methods, the instruments used for data collection, the data collection process, the techniques applied for data analysis, and the measures taken to ensure validity and reliability.

3.1 Research Design

A descriptive and causal-comparative research design is employed in this study. This research design aids in effective planning and provides a structured approach for data collection. The researcher opted for a descriptive survey design to fulfill the study's objectives. Survey research proves especially useful for collecting data about individual beliefs, social realities, ideas, and viewpoints.

3.2 Population, Sample and Sampling Design

A population consists of a broad group of individuals, events, or items, which makes it unfeasible to gather detailed data from every single member. Therefore, researchers often select a subset or sample from the population. Sampling, according to Mueller (1970), aims to reduce costs in terms of money, effort, and time. In this study, the population consists of all customers of commercial banks in Nepal. Nepal has twenty commercial banks, but this study selected Nepal Bank Limited and Nabil Bank Limited because they exemplify key features of Nepal's commercial banking sector. Nepal Bank Limited is the country's first commercial bank, while Nabil Bank Limited is the first joint venture commercial bank. Both banks have a substantial number of customers registered for e-banking services. The sample for the study included 417 were distributed among them valid response size of respondents are 400, among 400 customers from both banks who use e-banking services in the Kathmandu district. The non random sampling method and convenience sampling method was employed to ensure the sample represented the characteristics of the entire population of commercial bank customers in Nepal.

Population size (N) = 400

Confidence level = 95% → Z = 1.96

Margin of error (E) = 0.05

Proportion (p) = 0.5 (most conservative estimate)

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{E^2}$$

$$n = \frac{(1.96)^2 \cdot 0.5(1-0.5)}{(0.05)^2}$$

$$n = 384.5 = 385$$

Other 15 respondents are non responses respondent are participated. So, a sample size of 400 respondents is justified even under statistical standards.

3.4 Sources and Tools of Data Collection

Data serves as the fundamental source of collection, highlighting the necessity of gathering accurate and dependable information in all research types. In line with the study's needs, primary data was utilized, gathered through the use of questionnaires as the primary research tool.

3.5 Data Collection Procedure

Data acts as the foundation and mirror of research, capturing the views, ideas, and attitudes of participants. Hence, collecting trustworthy data is essential for any research effort. In this study, information was obtained from participants using a structured questionnaire. The researcher approached selected banks in Kathmandu, obtaining approval from branch managers and customers prior to distributing the questionnaire. Prior to distribution, the questionnaire underwent scrutiny by the research supervisor, experienced professionals, and experts to ensure clarity, appropriateness of content, and feasibility of the time allocated for completion. During data collection, the researcher personally explained the study's title, purpose, rationale for selecting the topic, and questionnaire completion methods to individual respondents and groups. Questionnaires were distributed to customers of both banks, with some respondents completing them immediately and others returning them within four to five days after distribution. This methodical approach aimed to enhance questionnaire comprehension, minimize misinterpretation, and optimize data reliability for the study.

3.5.1 Questionnaire

A questionnaire is a tool comprising a series of questions on psychological, social, educational, or other topics, administered to individuals or groups to gather data related to issues under investigation (Koul, 2000, as cited in Khanal, 2015). In this research, quantitative data were collected using a structured questionnaire divided into two sections. Section A gathers respondent information, while Section B captures respondent opinions on specific statements. This structure ensures comprehensive data collection across the key areas of interest in the study.

3.6 Method of Data Analysis

The gathered data were analyzed using quantitative techniques to extract valuable insights. Descriptive statistics, including frequencies and percentages, were used to display the quantitative information in tables. The questionnaire responses were coded and input into the Statistical Package for the Social Sciences (SPSS Version 27.0) for comprehensive analysis. This procedure generated means, standard deviations, correlations, and frequency distributions for all independent and dependent variables.

Specifically, customer satisfaction was assessed using regression analysis with three independent variables. Measures such as mean, percentage, and standard deviation helped clarify the central tendencies of the data. Tables and bar graphs were employed for further visual representation, enhancing the clarity and interpretability of the findings.

II) Correlation: Correlation analysis, a statistical technique that measures the strength of association between two quantitative variables, was employed in this study.

III) Regression Analysis:

Regression analysis is a robust statistical technique used to investigate the relationship between multiple independent variables and a dependent variable, focusing on how the former affect the latter.

The empirical model is defined as shown below:

$$Y=CS= \alpha+\beta1*U+\beta2*A+\beta3*F+\beta4*PF+e.$$

Were,

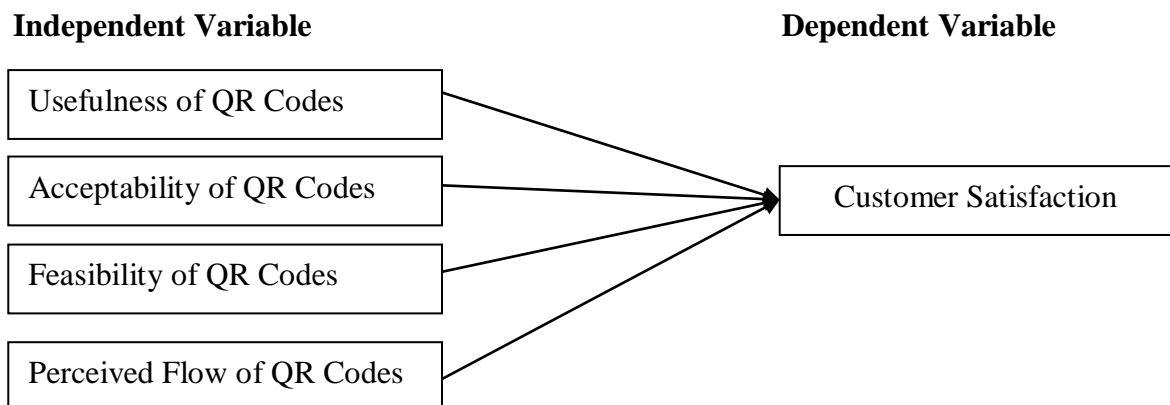
CS	=	Customer Satisfaction
U	=	Usefulness of QR Codes
A	=	Acceptability of QR Codes
F	=	Feasibility of QR Codes
PF	=	Perceived flow of QR Codes
e.	=	error terms.

3.7 Research Framework and Definition of the Variables

A conceptual framework serves as an analytical tool that varies across different contexts and applications.

It helps to clarify concepts and organize ideas by providing a comprehensive overview. To examine the impact of QR codes on customer satisfaction, the researcher has developed the following conceptual framework.

This framework draws on insights from several prior studies focused specifically on the relationship between QR codes and customer satisfaction.



(Source: Hossain, Zhou, & Rahman, 2018)

Figure 1: Research Framework

This conceptual framework illustrates the connections among the variables in this study, aiming to explore how e-banking influences customer satisfaction.

Dependent Variable as a Customer Satisfaction

This study examines the impact of QR code services on customer satisfaction in Nepalese commercial banks by analyzing several key independent variables. The conceptual framework is based on prior research, particularly the work of Hossain, Zhou, and Rahman (2018), which highlights the relationship between digital banking features and customer satisfaction.

Dependent Variable

Customer Satisfaction: Customer satisfaction refers to the overall contentment of customers with the services provided. In the context of this study, it specifically relates to how satisfied customers are with QR code banking services. Investigating this relationship aims to fill gaps in existing literature by focusing on QR code utilization in Nepalese banks. Through rigorous statistical methods, the study seeks to identify key factors influencing satisfaction, offering insights for banks and policymakers to enhance digital banking experiences (Hossain et al., 2018).

Independent Variables

Usefulness: Usefulness refers to the degree to which a service or technology provides benefits that meet customer needs effectively. According to Hossain et al. (2018), apps or systems that fail to deliver adequate performance, usability, and reliability components of usefulness are at risk of being rejected by users. In this study, usefulness captures how well QR code services perform in meeting customers' banking needs.

Acceptability: Acceptability is defined as the extent to which a product or service is deemed satisfactory or appropriate for its intended purpose, even if it is not perfect. It involves a judgment of whether the QR code service is sufficiently good to be used by customers without causing dissatisfaction. The concept emphasizes that even if a system isn't ideal, it can still be accepted if it meets minimum user requirements (adapted from general definitions of acceptability; see also Hossain et al., 2018).

Feasibility: Feasibility assesses the practicality and viability of implementing QR code banking services. It involves evaluating whether the service can be successfully integrated and sustained, considering potential challenges and operational issues. The feasibility factor helps in understanding if the QR code service is realistically usable and beneficial for customers and banks alike (based on definitions from feasibility studies, as described by Hossain et al., 2018).

Perceived Flow: Perceived flow is the psychological experience of being fully immersed and engaged in an activity, often leading to satisfaction and positive outcomes. In the context of QR code usage, perceived flow refers to customers feeling focused and absorbed when using QR services, which can enhance their overall satisfaction (Hossain et al., 2018). This concept is critical because the subjective

feeling of smooth and enjoyable interaction with QR code services may drive higher customer satisfaction.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the research findings related to the study's objectives, which focused on evaluating the influence of electronic banking on customer satisfaction at Nepal Bank Limited and Nabil Bank Limited. Data collected from 400 customers were analyzed, concentrating on three key areas: internet banking, QR banking, and mobile banking. The primary data collection instrument was a questionnaire consisting of eighteen closed-ended items, as detailed in the appendix. Responses were measured on a 5-point Likert scales, ranging from strongly agree to strongly disagree.

The data analysis was performed using SPSS version 27.0. The results are organized in tables, beginning with demographic information such as gender, marital status, age, education level, occupation, and annual income. Following this, the chapter discusses the answers to the research questions guiding the study.

4.1 Demographic Characteristics of Respondents

The study gathered data on demographic characteristics, and detailed findings for each demographic factor are presented.

Gender of the Respondents

Table 3

Gender of the respondents

Gender	Frequency	Percent	Cumulative Percent
Male	208	52.00	52.00
Female	192	48.00	100.0
Total	400	100.0	

Table 3 reveals that the majority of the respondents were male. There is summarized explanation of the gender distribution based on the survey data of 400 respondents. The survey included 208 male respondents, which constitutes 52.00% of the total respondents. Additionally, there were 192 female respondents, comprising 48.00% of the total sample size. Together, these percentages account for the entire group of 400 respondents. This breakdown shows that slightly more than half (52.00%) of the respondents were female, while the remaining 48.00% were male. The percentages

provide a clear picture of the gender distribution within the surveyed population of 400 individuals.

Marital Status of Respondents

Table 4

Marital Status of respondents

Marital Status	Frequency	Percent	Cumulative Percent
Married	235	58.75	58.75
Unmarried	165	41.25	100.0
Total	400	100.0	

Table 4 shows that the next demographic variable of the respondents was their marital status. Out of 400 respondents surveyed, 235 respondents are married, comprising 58.75% of the total sample. 165 respondents are unmarried, making up 41.25% of the total sample. The cumulative percentage of 100% confirms that all respondents are categorized as either married or unmarried. This data highlights a significant majority of married individuals (58.75%) compared to unmarried individuals (41.25%) within the surveyed population. This breakdown offers a clear snapshot of the marital status distribution among the respondents, emphasizing the prevalence of married individuals in the sample group.

Age of the Respondents

Table 5

Respondents of Ages

Age Group	Frequency	Percent	Cumulative Percent
18 – 25	164	41.00	41.0
26 – 35	119	29.8	70.8
36-45	83	20.8	91.5
45 & Above	33	8.3	99.8
Total	400	100.0	100.0

Table 5 represents the demographic variable of the respondents examined was their age. In a survey of 400 respondents where age group respondents (16.25% of the

total) are in this age group. Similarly, 18-25 to age 164 respondents (41.00% of the total) fall within this age range.

Similarly, 26-35 years the respondents are 119 (29.8% of the total) belong to this age category. In the 36-45 age groups, where 83 respondents (20.8% of the total) are in this age bracket where 45 & above age groups shows 25 respondents (6.25% of the total) are aged 45 years and above. The largest proportions of respondents, at 18-25 164%, are aged between 18 years. The survey also captures significant numbers in the 26-35 age range (119%), followed by those aged 36-45 (20.8%), and those below 18 years old (41.00%). Respondents aged 45 years and above constitute the smallest group at 8.3 % of the total.

The cumulative percentage reaching 100% indicates that all 400 respondents are categorized into these distinct age groups. This data provides valuable insights into the age demographics of the surveyed population, showing a concentration of respondents in younger and middle-age brackets, with fewer participants in older age categories.

Education Status of Respondents

Table 6

Responses of academic qualification

Education Status	Frequency	Percent	Cumulative Percent
High school or below	103	32.8	32.8
College Students	83	33.8	66.5
Graduate or above	214	33.5	100.0
Total	400	100.0	

Table 6 presents an analysis of the educational backgrounds of the respondents in the sample. In a survey of 400 respondents, their educational backgrounds were categorized into several academic qualifications. The majority of respondents hold a High school or below individuals or 32.8% of the total sample 103. College Students following closely, college students by 83 respondents, representing 33.8% of the sample. Graduate or above constituted 214 respondents, making up 33.5% of the surveyed population.

Occupation of respondents

Table 7

Respondents of Occupation

Occupation	Frequency	Percent	Cumulative Percent
Public service	103	25.8	25.8
Business	83	20.8	46.5
Not currently employed (e.g. student, retired, housewife)	214	53.5	100
Total	400		

The demographic characteristic was the occupation of the respondents. In a survey of 400 respondents, the distribution across various occupations provides a snapshot of their professional engagements.

The largest occupational group is students, comprising 103 Public service individuals or 25.8% of the total sample, 400 indicating a significant portion actively Business total 83 and 20.8. Not currently employed (e.g. student, retired, and housewife) for 214 respondents, constituting 53.5% of the sample, reflecting a substantial presence in entrepreneurial activities.

Not currently employed (e.g. student, retired, housewife) this data underscores the diversity of professional statuses within the surveyed population, Business Not currently employed (e.g. student, retired, housewife) and Occupation public service encompassing students, various forms of employment, retirees, and individuals managing household responsibilities.

This section deals with the responses of respondent based on the use of Respondents of Occupation and their satisfaction. On the basis of respondent's satisfaction on Respondents of Occupation QR banking, frequency and percentage is tabulated below:

Table 8
Description Customer Satisfaction

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I was very satisfy while using the QR code	400	2.00	5.00	4.0825	.66090
I feel positive attitude while using QR codes for shopping.	400	2.00	5.00	4.0375	.72623
My interaction with the QR code was very satisfying	400	2.00	5.00	3.9975	.75094
Valid N (listwise)	400				

Table 8 description Customer Satisfaction shows the responses given by respondents regarding the I was very satisfy while using the QR code. I feel positive attitude while using QR codes for shopping and my interaction with the QR code was very satisfying This overwhelming positive response indicates that customers perceive QR Codes and Customer Satisfaction.

The Min value and max value are 2 and 5 respectively. Secondly, in terms of accessibility and ease of account management, a significant portion of respondents agree that they can easily access their accounts and perform balance inquiries.

This high percentage reflects the convenience customers experience when using internet banking services.

This section presents respondents' feedback regarding their use of mobile banking and their level of satisfaction.

Table 9
Descriptive Statistics Usefulness

Statements	N	Minimum	Maximum	Mean	Std. Deviation
Very easy to use	400	2.00	5.00	4.0025	.82212
Easily Connect with shopping site	400	2.00	5.00	3.8925	.83827
Effective for online purchasing	400	2.00	5.00	3.8725	.78600
User centered design from the user perspective	400	1.00	5.00	3.8250	.84627
Valid N (listwise)	400				

Table 9 Descriptive Statistics Usefulness shows the responses given by respondents regarding the I was very satisfy while using the QR code. I feel positive attitude while using QR codes for shopping And My interaction with the QR code was very easy to use Easily Connect with shopping site Effective for online purchasing and User centered design from the user perspective satisfying .This overwhelming positive response indicates that customers perceive QR Codes and Usefulness The Min value and max value are 2 and 5 respectively. Secondly, in terms of accessibility and ease of account management, a significant portion of respondents agree that they can easily access their accounts and perform balance inquiries.

Table 10
Descriptive Statistics Acceptability

Statements	N	Minimu m	Maximu m	Mean	Std. Deviation
Graphics matched with texts	400	1.00	5.00	3.7500	.83321
It is useable	400	1.00	5.00	3.9400	.88224
Provide online purchase information	400	1.00	45.00	3.6750	2.24767
Running cost is minimum / no cost	400	1.00	5.00	3.5575	.88524
Suitable for user	400	1.00	5.00	3.5450	.83349
Valid N (listwise)	400				

Table 10 Descriptive Statistics Acceptability shows the responses given by

respondents regarding the it was very satisfy while using the QR code. I feel positive attitude while using QR codes for shopping and My interaction with the QR code was very easy to use Easily Connect with shopping site Effective for online purchasing and User centered design from the user perspective satisfying .This overwhelming positive response indicates that customers perceive QR Codes and Descriptive Statistics Acceptability The Min value and max value are 1 and 5 respectively. The Mean and Std. are 3.7500 and .83321 respectively.

Table 11

Descriptive Statistics Feasibility

Statements	N	Minimu m	Maxim um	Mean	Std. Deviation
Facilities information	400	1.00	5.00	3.6150	.86524
Practicality works properly for online shopping	400	1.00	5.00	3.6225	.91492
contains adequate information	400	1.00	5.00	3.5675	.85573
Works in physical and / or online contexts	400	1.00	5.00	3.5200	.81932
Valid N (listwise)	400				

Table 11 Descriptive Statistics Feasibility the responses given by respondents regarding the perceived cost. Facilities information, Practicality works properly for online shopping, contains adequate information, and Works in physical and or online contexts the customers rated the statements from. From four statements, the respondents were near in Neutral on all statements. This overwhelming positive response indicates that customers perceive QR Codes as efficient in managing their financial transactions, total Sample Number 400 and Mini value and Max 1 and 5 respectively. Value Secondly, in terms of accessibility and ease of account management, a significant portion of respondents agree that they can easily access their accounts and perform balance inquiries. This high percentage reflects the convenience customers experience when using internet banking services.

4.3 Correlation Analysis

Correlation analysis was performed to assess the relationships between the variables. The strength and direction of these relationships were measured using Pearson's correlation coefficient. This section examines how the variables are related to one another. A positive correlation suggests that an increase in one variable is generally accompanied by an increase in the other, while a negative correlation implies that as one variable rises, the other tends to fall. This analysis provides insight into how variations in one variable may be linked to changes in another within the study.

Table 12

Correlation Matrix

Variables		Usefulness	Acceptability	Feasibility	Perceived	Customer
Usefulness	Pearson	1				
	Correlation					
	Sig. (2-tailed)					
Acceptability	Pearson	.464**	1			
	Correlation					
	Sig. (2-tailed)	.000				
Feasibility	Pearson	.417**	.415**	1		
	Correlation					
	Sig. (2-tailed)	.000	.000			
Perceived	Pearson	.347**	.343**	.461**	1	
	Correlation					
	Sig. (2-tailed)	.000	.000	.000		
Customer	Pearson	.494**	.377**	.361**	.279**	1
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	

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

The table 12 shows that the correlation matrix provided reveals the relationships between Customer Satisfaction (CS), usefulness (UF), Acceptability (APT), and Feasibility (FB). Customer Satisfaction (CS) shows weak positive correlations with both IB (0.01**) and CS (.494**), both of which are statistically significant at the 0.01 level. This suggests that higher levels of Customer Satisfaction tend to correspond slightly to higher levels of Customer Satisfaction (CS). Whereas the usefulness (UF) exhibits a strong positive correlation with Acceptability (APT), (.464**), indicating a robust relationship between Customer satisfaction levels. IB shows a weak positive correlation with CS (.494**), suggesting that higher levels of Customer satisfaction are associated with slightly higher levels of Customer Satisfaction. Perceived Value has a

moderate positive correlation with QR (.347*), significant at the 0.05 level. This negative correlation suggests that as satisfaction with Internet Banking increases, satisfaction with Quick Response tends to decrease to a moderate extent. Similarly, Quick Response (QR) does not show a statistically significant correlation with UF (400), indicating that satisfaction with usefulness (UF). Mobile Banking is not significantly related to satisfaction with Quick Response services. QR has a weak positive correlation with CS (0.01**), implying that higher levels of Quick Response satisfaction are associated with slightly higher levels of Customer Satisfaction. QR has a moderate negative correlation with IB (347*), indicating that as satisfaction with Quick Response increases; satisfaction with usefulness tends to decrease to a moderate extent. At last Mobile Banking (MB) shows a strong positive correlation with Perceived (.347**) indicating a robust relationship between satisfaction levels of Mobile Banking and Internet Banking. Acceptability APT shows a very weak positive correlation with CS (0.011**) statistically significant at the 0.01 level, suggesting that higher levels of Mobile Banking satisfaction are associated with slightly higher levels of Customer Satisfaction. MB does not show a statistically significant correlation with CS (.494**) indicating no significant relationship between satisfaction with Feasibility Mobile Banking and Quick Response services.

Customer Satisfaction (CS) is positively associated with Internet Banking and Quick Response, albeit weakly. Similarly Internet Banking (IB) strongly correlates with Mobile Banking, indicating that customers satisfied with one banking service are likely satisfied with the other. However, it shows a negative correlation with Quick Response, implying a trade-off where customers satisfied with Internet Banking might be less satisfied with the speed of responses. Where Customer Satisfaction (CS) shows no significant relationship with Mobile Banking and a negative relationship with Customer Satisfaction, suggesting that satisfaction with CS services may not strongly influence satisfaction with other banking services. At last Feasibility (FB) strongly correlates with Customer Satisfaction but does not Feasibility correlate with Customer Satisfaction, indicating that satisfaction with Mobile Banking may not be influenced by the speed of responses from the bank. These insights can guide further analysis or strategic decisions related to improving customer satisfaction across different banking services.

4.4 Regression Analysis

To assess the reliability and statistical significance of the findings, this study utilizes primary data analyzed through a regression model outlined in Chapter Three. The analysis centers on regression outcomes from various model specifications to evaluate the estimated relationships. Specifically, it investigates how customer satisfaction (the dependent variable) is influenced by the independent variables: internet banking, QR banking, and mobile banking.

The subsequent tables display the regression results, illustrating the impact of each independent variable on customer satisfaction. This approach allows for a thorough examination of the impact of electronic banking services on overall customer satisfaction, providing insights into which services contribute most significantly to customer perceptions and experiences.

Table 13

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.539 ^a	.290	.283	.52018

a. Predictors: (constant), perceived flow feasibility acceptability and usefulness

Source SPSS Output

The model indicates that approximately 9% of the variation in the dependent variable can be explained by the predictors included Mobile banking, Internet banking, and QR banking. However, after adjusting for the number of predictors, the adjusted R Square shows value of -.290, suggesting that the model's explanatory power diminishes when considering the complexity added by these predictors. The standard error of the estimate, at .52018 units, reflects the average difference between observed and predicted values, indicating the model's moderate predictive accuracy. The negative adjusted R Square is atypical and typically suggests either over fitting of the model to the data or that the predictors chosen may not robustly explain the variance in the dependent variable. Therefore, careful consideration is warranted regarding the model's validity and the relevance of the predictors used.

Table 14

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.726	4	10.932	40.400	.000 ^b
	Residual	106.882	395	.271		
	Total	150.609	399			

a. Dependent Variable: Customer
b. Predictors: (Constant), Perceived, Acceptability, usefulness, Feasibility

The ANOVA table 14 assesses how well the regression model explains customer satisfaction. The regression model, incorporating predictors such as Perceived flow Feasibility Acceptability and Usefulness for 0.292 units of variance in customer satisfaction. This model yields an F-statistic of 40.400 with 3 degrees of freedom and a mean square of 10.932, yielding a significant p-value of 0.009. This significance indicates that the model as a whole is statistically significant at the 0.05 level, suggesting that these predictors collectively contribute to explaining customer satisfaction. In contrast, the residual sum of squares is 106.882 with degrees of freedom and a mean square of 10.932, indicating the unexplained variance in customer satisfaction. The total sum of squares, representing overall variability in customer satisfaction, amounts to 31.073. Therefore, while the model shows statistical significance, further exploration of its practical significance and predictive power is warranted.

Table 15

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.641	.194		8.464	.000
	usefulness	.347	.049	.357	7.107	.000
	Acceptability	.123	.044	.140	2.792	.005
	Feasibility	.129	.050	.133	2.589	.010
	Perceived	.039	.041	.046	.934	.351

a. Dependent Variable: Customer

a. Dependent Variable: customer satisfaction

The table 15 reveals how Internet banking, QR banking, and Mobile banking individually affect customer satisfaction in the regression model. The intercept (Constant) of 1.641 suggests that if all predictors are zero, while QR banking and Mobile banking contribute increases of 0.085 and 0.020 units, respectively. Standardized coefficients (Beta) indicate that both Internet banking and QR banking have comparable, modest standardized effects (.046), slightly more pronounced than that of Mobile banking (0.016). The T-statistics and corresponding significance levels (Sig.) underscore that Internet banking and QR banking are statistically significant predictors (Sig.=.005 and .010, respectively), whereas Mobile banking shows marginal significance (Sig.=.000). Overall, while Internet banking and QR codes banking exert stronger influences on customer satisfaction than Mobile banking; all three predictors contribute positively to explaining variations in customer satisfaction scores, as supported by the coefficients derived from the regression analysis.

4.5 Discussion

The studies conducted by Sharma (2025), Sherpa (2024), Banstola (2023), and Oli (2022) provide a comprehensive examination of digital banking adoption in Nepal, with a focus on customer satisfaction, mobile banking, and QR code services. Collectively, these studies reveal how convenience, cost-effectiveness, and demographic factors play a significant role in the growing trend of digital banking. While there are consistent findings across these studies, they also highlight areas of contrast in terms of technical barriers, user demographics, and infrastructural challenges, making the overall landscape of digital banking in Nepal both promising and complex.

In terms of consistency, all four studies point to the positive role of user convenience in driving customer satisfaction. Sharma (2025) and Oli (2022) emphasize how factors like time-saving and easy access are critical for electronic banking and QR services. This aligns with global studies (e.g., Lichtenstein and Williamson, 2006) that have established ease of use as a key factor in driving digital banking adoption. Similarly, Sherpa (2024) supports this by showing that mobile banking is particularly popular among young, tech-savvy users, a demographic that values both convenience and efficiency in their digital financial services. Banstola (2023) also echoes the importance of convenience but extends this idea by focusing on how reliability and ease of use drive the adoption of e-banking services.

However, the studies contrast when it comes to technical challenges and infrastructure limitations. Banstola (2023) highlights significant technical barriers such as irregular website backups, unclear policies, and the lack of proper digital infrastructure, which hinder the expansion of digital banking in Nepal. This is a point not addressed in the other studies, which primarily focus on the user satisfaction aspects of mobile banking and QR services. Sherpa and Oli (2022) discuss user demographics and service features but do not touch on the technical complexities faced by banks and regulatory bodies, which are crucial for implementing efficient and reliable digital banking systems. This contrast highlights a gap in the current literature, where operational and infrastructural issues are often overlooked.

In terms of overall discussion, the studies suggest that while digital banking adoption is on the rise in Nepal, it is essential to address the infrastructure and policy barriers identified by Banstola (2023). Without the resolution of technical issues like website backup reliability and regulatory clarity, even the most user-friendly services will struggle to reach a broader audience. On the other hand, the studies also highlight the importance of cost-effectiveness in digital banking services, as evidenced by Oli (2022), who found that reasonable fees for QR services significantly impact customer satisfaction and adoption rates. This insight echoes findings from previous research (Alalwan, 2018), where cost-effectiveness was identified as a crucial factor in digital payment system adoption.

Overall, the findings from Sharma, Sherpa, Banstola, and Oli contribute to a deeper understanding of the dynamics surrounding digital banking in Nepal. While there is clear consistency in how factors like convenience, ease of use, and cost-effectiveness drive satisfaction, Banstola's focus on infrastructure challenges offers a more nuanced view of the barriers to widespread adoption. These challenges must be addressed for Nepal to fully benefit from the potential of digital banking. Policy clarity and technological readiness are essential for the future growth of these services, alongside meeting customer needs and expectations. Thus, a holistic approach that integrates user experience with technical infrastructure will be crucial in fostering a successful and sustainable digital banking ecosystem in Nepal.

CHAPTER V

SUMMARY AND CONCLUSIONS

Following the analysis and interpretation of the collected data according to the study design, this final chapter presents the conclusions. It focuses on the impact of e-banking services on customer satisfaction in Nepalese commercial banks. The chapter is organized into three parts: the first section discusses the study's findings, the second section offers the conclusions drawn from the research, and the final section outlines practical implications aimed at addressing issues identified during the study.

5.1 Summary

This research explores how QR code banking services influence customer satisfaction in commercial banks across Nepal, with a specific focus on factors such as usefulness, acceptability, feasibility, and perceived flow. The report offers a structured overview, starting with an introduction that discusses the background, research issues, objectives, hypotheses, significance, and limitations of the study. The literature review addresses major concepts, relevant theories, and prior empirical research while identifying a gap in the Nepalese context. The methodology section explains the research design, target population, sampling procedures, data collection tools, and methods of analysis. The results and discussion section outlines respondents' demographic profiles and presents correlation and regression analyses, along with an interpretation of the findings.

Finally, the study concludes by summarizing the key findings, drawing conclusions, discussing implications, and suggesting areas for future research. References and an appendix provide additional resources and supporting materials. Utilizing a descriptive and causal-comparative research design, primary data was collected through structured questionnaires from 400 respondents across Nepal Bank Limited and Nabil Bank Limited. The research aims to assess the current status of QR banking services and analyze how these factors influence customer satisfaction. Data analysis methods include descriptive statistics, correlation, and regression analysis, which provide insights into the relationships between QR code features and customer satisfaction. The study's conceptual framework, adapted from previous research, suggests that the usefulness, acceptability, feasibility, and perceived flow of QR codes are key determinants of customer satisfaction. The findings aim to contribute to

a better understanding of how QR code banking can enhance the digital banking experience in Nepal, offering valuable recommendations for both banks and policymakers.

The findings indicate that QR code usage for online shopping is generally well-received by respondents, with high levels of satisfaction, ease of use, and positive attitudes. Demographically, the majority of respondents were male, married, and aged between 18-25, with a highly educated and diverse occupational background. The data reveals that usefulness, acceptability, and feasibility of QR codes are key drivers of customer satisfaction, with usefulness being the most significant predictor. Respondents found QR codes easy to use and effective for connecting with shopping sites, though there is room for improvement in their direct impact on purchases. While acceptability was positive, concerns about costs slightly impacted perceptions. Feasibility scores suggest that while QR codes provide adequate information and function well in online settings, there are opportunities for improvement in their application in both physical and digital environments. Overall, the study emphasizes the importance of improving QR code functionality, reducing costs, and focusing on enhancing usability to drive greater customer satisfaction.

5.2 Conclusions

The study reveals that QR code banking services in Nepalese commercial banks, specifically Nepal Bank Limited and Nabil Bank Limited, are perceived as useful and relatively feasible by customers. Customers find QR code services easy to use, effective for accessing banking services, and beneficial for their digital banking needs. However, there is a mixed perception regarding the acceptability and feasibility of these services. While many respondents are satisfied with QR codes' convenience and usability, some report challenges related to connectivity and perceived costs. Furthermore, the study highlights that perceived flow, or the level of engagement and satisfaction during the use of QR codes, varies among users, with many experiencing a seamless and immersive interaction, but others struggling with interruptions in service.

The study indicates significant positive correlations between the independent variables (usefulness, acceptability, feasibility, and perceived flow) and customer satisfaction. Among these, usefulness has the strongest positive impact on customer

satisfaction, suggesting that customers are primarily driven by how well QR codes meet their banking needs, acceptability and perceived flow also show substantial positive relationships with satisfaction, highlighting the importance of user-friendly design and enjoyable experiences. Feasibility, while important, has a moderate impact on customer satisfaction, pointing to the need for further improvements in operational aspects such as accessibility and cost-efficiency. Overall, the study confirms that these QR code features significantly influence customer satisfaction in Nepalese commercial banks.

The study examined the regression analysis shows that QR code features usefulness, acceptability, feasibility, and perceived flow collectively explain a substantial portion of the variation in customer satisfaction. Among these, usefulness is the most significant predictor, followed by acceptability and feasibility. Perceived flow, although positively correlated with satisfaction, has a less pronounced effect on customer satisfaction compared to the other variables. The findings underscore that to enhance customer satisfaction; Nepalese banks must focus on improving the usefulness and ease of QR code services, ensuring they meet customer expectations. Furthermore, addressing acceptability issues, such as minimizing operational challenges and perceived costs, is crucial for improving overall user satisfaction with QR banking.

5.3 Implications

Drawing from the study's findings and insights from prior literature, it is clear that electronic banking services play a vital role in fulfilling varied customer expectations and boosting satisfaction levels. Although multiple elements contribute to customer satisfaction, the research highlights the need to enhance the reliability and effectiveness of internet banking, QR-based services, and mobile banking platforms. Based on this, several key implications can be outlined:

- i. **Enhance Internet Banking:** Banking institutions should focus on making internet banking more flexible, fast, and user-friendly to increase customer satisfaction.
- ii. **Address Security Concerns:** Despite relatively lower impact on satisfaction, commercial banks should invest in robust security technologies to enhance secrecy and privacy in internet banking transactions.
- iii. **Government Policy Support:** There is a need for government and regulatory

bodies to formulate policies that promote widespread adoption of internet banking across all financial institutions in Nepal, including legislation to combat cyber-crime.

- iv. Customer Education: Efforts should be made to educate a majority of the banking population about internet banking services to increase awareness and usage.
- v. Differentiation Strategy: Banks offering electronic services should differentiate themselves by providing clear information to customers about the competitive advantages of their services.
- vi. Improve ATM Services: Authorities should ensure that Automated Teller Machine (ATM) services are convenient and efficient for customers, possibly by increasing the number of machines and transaction limits.
- vii. QR Machine Maintenance: Regular inspection and maintenance of QR machines, along with security measures like providing guards, particularly during night hours, can improve the reliability and safety of QR services.
- viii. User-Friendly Technology: Banks should deploy user-friendly mobile banking applications developed in collaboration with mobile service providers to enhance ease of use and efficiency.
- ix. Enhance Bill Payment Services: Mobile banking systems should simplify bill payment processes and expand anywhere bill payment options to meet customer needs effectively.
- x. Assure Security in Mobile Banking: While mobile banking is efficient, banks must assure customers about the security and privacy of their transactions to maximize satisfaction.
- xi. Value Communication: Banks should focus on communicating the value that customers derive from electronic banking services rather than just the services offered to enhance customer perception and satisfaction.
- xii. System Security: Strengthening system security measures is crucial to building customer trust and ensuring that banks fulfill their commitments made during marketing and advertisements.
- xiii. Personalized Customer Support: Offering live support over the internet instead of email-based support can foster better relationships and trust with customers, thereby increasing satisfaction.

REFERENCES

- Akroush, R., Sutjiati, R.S and Maharsi, A. (2015). The service quality, customer satisfaction, and loyalty in the Yemeni mobile service market. *Journal of Asian Finance, Economics and Business*, 8(4),475–82.
- Al Karim, R. (2019). Influence of Service Quality on Customer Satisfaction and Customer Loyalty in the Private Banking Sector of Bangladesh: A PLS Approach. *Journal of Marketing and Information System*, 1(3), 8-17.
- Allen, E., Fjernerstad, J. and Zwass, P. (2001). E-commerce marketing strategies: An integrated framework and case analysis. *Logistic Information Management*, 14(2), 14-23.
- Alwie, F. (2016). The sales promotion and e-service quality impact on repurchase intention. *The Journal of International Management Studies*, 5(2), 61-74.
- Babatunde, M.O. and Salawudeen, M.O. (2017). Analysis of the impact of electronic banking on customers' satisfaction in Nigeria. *Greener Journal of Business and Management Studies*, 7(3), 030-042.
- Banstola, S. (2012). Prospect and challenges of E-banking in Nepal. *The Journal of Nepalese Business Studies*, 4(1) 96-104.
- Bazher, F. (2019). The e-service quality and perceived value in internet banking. *International Journal of Management*, 6(1), 21-35.
- Best, J.W. and Kahn, J.V. (2012). *Research in Education*. Veena Publishing House.
- Bhandari, R. (2023). Impact of Mobile Banking on Customer Satisfaction in Nepal. *Journal of Nepalese Financial Studies*, 10(2), 55-64.
- Bhattarai, S. (2022). Financial Inclusion through Digital Payment Systems in Nepal. *Nepal Journal of Economic Development*, 8(1), 88-97.
- Bismark, J., Acrone, P. and Windey, J.S. (2015). Electronic banking and customer satisfaction. *British Journal of Economics, Management and Trade*,9(3): 1-8
- Chang, V.W. and Xu, Q.C. (2021). The customer's intention to use QR codes in mobile payments. *Journal of Global Information Management*, 29(6), 1-21.
- Daniel, E. (1999). Provision of electronic banking in the UK and the Republic of Ireland. *International Journal of Bank Marketing*, 17(2), 72-82.
- Dhingra, S., Gupta, S. and Bhatta, R. (2020). The relationship among service quality of e-commerce websites, customer satisfaction, and purchase intention. *International Journal of E-Business Research*, 16(3), 42-59.

- Dotulong, V.A., Andajani, E and Rahayu, S. (2021). The effect of price, service quality, customer satisfaction, and image on customer loyalty on lion air Indonesia. *Journal of International Symposium on Management*, 1(1), 65-87.
- Fida, B.A., Ahmed, U., Al Balushi, Y. and Singh, D. (2022). The impact of service quality on customer loyalty and customer satisfaction in Islamic banks in the sultanate of Oman. *Journal of Economic*, 10(2), 75-86.
- Fournier, S. and Mick, D.G. (1999). Rediscovering satisfaction. *Journal of Marketing*, 63(3), 5-23.
- Hossain, M.S., Zhou, X. and Rahman, M.F. (2018). The impact of QR codes on online shopping: perceived flow perspective. *International Journal of Engineering Business Management*, 10(1), 1-11.
- Jalal, A., Marzooq, J. and Nabi, H.A. (2011). Evaluating the Impacts of Online Banking Factors on Motivating the Process of E-banking. *The Journal of Business, Computer Science*, 1(2), 98-109.
- Joshi, P. (2021). Perceived Service Quality and Customer Satisfaction in Nepalese Banking Industry. *Contemporary Research: An Interdisciplinary Academic Journal*, 5(1): 1-23
- Joshi, P. (2022). The Role of QR Codes in Nepal's Banking Sector Post-COVID-19. *Kathmandu Economic Review*, 15(4), 32-45.
- Kerlinger, F.N. (1973). *Foundation of behavioral research*. SurjectPublication.
- Khanal, P. (2015). *Research methodology in education*. Sunlightpublication.
- Koirala, S., & Shrestha, R. (2023). Customer Perception and Satisfaction in Digital Banking in Nepal. *South Asian Finance Journal*, 12(3), 44-56.
- Koul, J. (2000). *E-banking on customer satisfaction*. University of Lahore.
- Lin, D., Lee, C.K.M, Siu, M.K., Lau, H. and Choy, K.L. (2020). Analysis of customers returns behaviour after online shopping in chin using SEM. *Industrial Management and Data Systems*, 1(5), 883-903.
- Mazwile, M. (2014). The influence of electronic banking on service delivery satisfaction to customers (the case of NMB bank in Tanzania). *International Journal of Marketing*, 16(5), 195–201.
- Mishra, U. (2020). Impact of service quality dimensions on customer satisfaction in commercial bank. *Rupantaran: A Multidisciplinary Journal*, 4(6), 189-198.
- Mols, N.P. (1998). Organizing for the Effective Introduction of New Distribution Channels in Retail Banking, *European Journal of Marketing*, 3(5), 661-686.

- Momeni, S. (2013). *Customer satisfaction*. Surject Publication.
- Mueller, P. (1970). *Customer satisfaction and its Impact*. Published by John Wiley and Sons Ltd.
- Narteh, J.S. (2014). Impact of QR codes on banking performance and customer satisfaction. *International Journal of Management*, 7(8), 19-36.
- Nepal Rastra Bank (2024). *Annual Report 2024: Digital Banking and Financial Inclusion in Nepal*. Nepal Rastra Bank, Kathmandu.
- Oleh, A. and Winston, T. (2021). The Influence of E-Service Quality towards Customer Satisfaction and Customer Loyalty on Gopay Electronic Wallet Users. *Journal Inovasi Penelitian*, 2(6), 56-74.
- Oli, C. (2016). Factors affecting customers satisfaction from QR services in Nepalese commercial banks. *New Business Age*, 12(4), 621-634.
- Ovia, K. (2001). Concepts of internet banking and its impact on customer satisfaction. *International Journal of Management*, 7(4), 92-108.
- Pant, P.R. (2016). *Social science research and thesis writing*. Buddha Publication Pvt. Ltd.
- Paulo, R., Tiago, O. and Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *International Journal of Heliyon*, 5(6), 56-74.
- Rai, P. (2024). Technological Advancements in QR Code Payment Systems in Nepal. *Journal of Nepalese Technology*, 19(2), 76-88.
- Ravichandran, J.S., Kokkranikal, J. Bhaeadwaj, R. and Antony, J. (2010). The influence of service quality on customer satisfaction. *International Journal of Humanities Technology and Civilization (IJHTC)*, 1(11), 129-137.
- Shahriari, P. (2014). Challenges of Automated Teller Machine QR Usage. *Journal of internet banking and Commerce*, 5(1), 85-96.
- Sharma, A. (2023). QR Code Technology in Nepal's Banking System. *Nepal Banking Review*, 9(1), 20-29.
- Sharma, G. (2017). *Analysis of Electronic Banking practice and Customer Satisfaction with reference to HBL and KBL*. Faculty of Management, Tribhuvan University.
- Sherpa, P. (2015). *Development and impact of mobile banking in Nepal*. An Unpublished Master Degree Dissertation, Tribhuvan University.
- Shrestha, A. (2023). The Impact of QR Codes on Consumer Satisfaction in Nepalese

- Banks. *Kathmandu Journal of Business and Economics*, 11(2), 54-67.
- Supriyanto, V., Dotulong, A., Andajani, E and Rahayu, S. (2021). The effects of service quality and customer satisfaction on loyalty of bank customers. *Advances in Economics, Business and Management Research*, 1(18), 63-80.
- Vakulenko, Y., Shams, P., Hellstrom, D and Hjort, K. (2019). The online retail experience and customer satisfaction: the mediating role of last mile delivery. *The International Review of Retail, Distribution and Consumer Research*, 29(3), 306-320.
- Yang, J., Whitefield, M. and Boehme, K. (2007). New issues and challenges facing e-banking in rural areas. *International Journal of Electronic Finance*, 1(3), 336-354.

APPENDIX

Questionnaire:

Dear Respondents,

I am Shradha Gurung, a thesis student at Shanker Dev Campus, conducting research on Quick response codes and customer satisfaction of commercial banks. This study is part of my academic requirement for the partial fulfillment of my degree. I kindly request your valuable time to complete this questionnaire. Your responses will be kept strictly confidential and used solely for research purposes. Please tick (√) the option that best reflects your opinion. Your participation is highly appreciated and will greatly contribute to the success of this study.

Gender:

- Male
- Female

Age (Years)

- 18-25
- 26-35
- 36-45
- Above 45 according

Education status

- High School or below
- College student
- Graduate or above

Occupation

- Public service
- Business
- Not currently employed (e.g. student, retired, housewife)

Same formatting

Q.N.	Questionnaire	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
Customer Satisfaction						
CS1	I was very satisfied while using the QR code.					
CS2	I feel positive attitude while using QR codes for shopping.					
CS3	My interaction with the QR code was very satisfying.					

Usefulness						
U1	Very easy to use					
U2	Easily connect with shopping site					
U3	Effective for online purchasing					
U4	User centered design from the user perspective					
Acceptability						
A1	Graphics matched with texts					
A2	It is usable					
A3	Provides online purchase information					
A4	Running cost is minimum/ no cost					
A5	Suitable for users					
Feasibility						
F1	Facilitates information					
F2	Practicality works properly for online shopping					
F3	Contains adequate information					
F4	Works in physical and / or online contexts					
Perceived flow						
PF1	I felt totally captivated while using the QR codes					
PF2	Time seemed to pass very quickly while using the QR code					
PF3	Nothing seemed to matter to me while using the QR code.					

Thank You!

PAPER NAME

**QR CODES AND CUSTOMER SATISFACTI
ON OF COMMERCIAL BANKS**

AUTHOR

Shradha Gurung

WORD COUNT

13974 Words

CHARACTER COUNT

87571 Characters

PAGE COUNT

50 Pages

FILE SIZE

94.9KB

SUBMISSION DATE

Jul 27, 2025 12:24 PM GMT+5:30

REPORT DATE

Jul 27, 2025 12:26 PM GMT+5:30

● 11% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

- 9% Internet database
- 5% Publications database
- Crossref database
- Crossref Posted Content database
- 0% Submitted Works database

● Excluded from Similarity Report

- Bibliographic material
- Quoted material
- Small Matches (Less than 10 words)