



**Ph.D. Thesis on
E-BANKING SERVICES IN NAGALAND: A STUDY OF
CUSTOMERS' PERSPECTIVE**

**THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY**

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Ph.D. Thesis on

**E-BANKING SERVICES IN NAGALAND: A STUDY OF CUSTOMERS'
PERSPECTIVE**

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Submitted

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Commerce of Nagaland University

CERTIFICATE

This is to certify that the thesis entitled “**E-banking Services in Nagaland: A Study of Customers’ Perspective**” submitted to Nagaland University for the degree of Doctor of Philosophy in Commerce is a record of the research work undertaken by **Ms. Kethosenuo Kesiezie**, Research Scholar of Department of Commerce, Nagaland University, bearing Regn. No. Ph.D/COM/00323, dated 23rd August 2019, under my supervision and guidance. It is an original piece of work. She has fulfilled all the requirements laid down in the Ph.D regulations of Nagaland University.

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I, **Kethosenuo Kesiezie**, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

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“The only impossible journey, is the one you never begin.”

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~ *Kethosenuo Kesiezie*

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LIST OF ABBREVIATIONS

Sl/No.	Abbreviation	Full Form
1	5G	Fifth Generation
2	AePS	Aadhaar Enabled Payment Service
3	APBL	Andhra Pradesh State Cooperative Bank
4	AI	Artificial Intelligence
5	ATM	Automated Teller Machine
6	APPBO	Average Population Per Bank Office
7	AXIS	AXIS bank
8	BAND	Bandhan Bank
9	BC	Bank Correspondents
10	BOB	Bank of Baroda
11	BOI	Bank of India
12	BOM	Bank of Maharashtra
13	BHIM	Bharat Interface for Money
14	BC	Business Correspondent
15	CAN	Canara Bank
16	CDR	Cash Deposit Ratio
17	CBI	Central Bank of India
18	CEPC	Consumer Education and Protection Cell
19	CSP	Customer Service Point
20	DOP	Department of Posts
21	ECS	Electronic Clearing Service
22	E-SQUAL	Electronic Service Quality
23	E-RecS-QUAL	Electronic Service Recovery Quality
24	EMI	Equated Monthly Instalment
25	EAF	Evangelical Social Action Forum Bank
26	FED	Federal Bank
27	FIDD	Financial Inclusion & Development Department
28	FLC	Financial Literacy Centre
29	FY	Financial Year

30	HSLC	High School Leaving Certificate
31	HSSLC	Higher Secondary School Leaving Certificate
32	HDFC	Housing Development Finance Corporation Bank
33	HRD	Human Resource Management Department
34	IMPS	Immediate Payment Service
35	IND	Indian Bank
36	IOB	Indian Overseas Bank
37	INDUS	IndusInd Bank
38	ICICI	Industrial Credit and Investment Corporation Bank
39	IDBI	Industrial Development Bank of India
40	ICT	Information & Communication Technology
41	IT	Information Technology
42	IDFC	Infrastructure Development Finance Company Bank
43	MICR	Magnetic Ink Character Recognition
44	MSME	Micro Small & Medium Enterprises
45	NRB	Nagaland Rural Bank
46	NSCB	Nagaland State Cooperative Bank
47	NABARD	National Bank for Agriculture & Rural Development
48	NEFT	National Electronic Fund Transfer
49	NESFB	North East Small Finance Bank Limited
50	NEDFi	North Eastern Development Finance Corporation Ltd
51	N/A	Not Applicable
52	NPCI	National Payments Corporation of India
53	OTP	One Time Password
54	PIN	Personal Identification Number
55	POS	Point Of Sale
56	PMJDY	Pradhan Mantri Jhan Dhan Yojna

57	PMMY	Pradhan Mantri Mudra Yojna
58	PS	Priority Sector
59	PSB	Punjab & Sind Bank
60	PNB	Punjab National Bank
61	QR	Quick Response
62	RTGS	Real Time Gross Settlement
63	RRB	Regional Rural Banks
64	RBI	Reserve Bank of India
65	RDB	Rural Development Block
66	RIDF	Rural Infrastructure Development Fund
67	SHG	Self Help Group
68	SMS	Short Message Service
69	SIB	South Indian Bank
70	SBI	State Bank of India
71	SLBC	State Level Bankers Committee
72	SSY	Sukanya Samriddhi Yojna
73	i.e.,	that is
74	UPI	Unified Payment Interface
75	UBI	Union Bank of India
76	UCO	United Commercial Bank
77	USSD	Unstructured Supplementary Service Data
78	WHO	World Health Organisation
79	YES	Yes Bank

CHAPTER I

INTRODUCTION: E-BANKING SERVICES

1.1 Introduction

In a world where technology is advancing rapidly, leading to profound and fundamental changes in every aspect of our lives, it is not surprising that this has caused many revolutions and transitions in the constantly evolving landscape of our country's economy, commerce, and trade. The advent of the internet has ushered in the 'new age' or 'modern era', sparking an ongoing series of changes that have undoubtedly transformed the way we live. One of the most noticeable changes is the growth and development of the virtual commercial space; the rise of electronic commerce or e-commerce.

The existence and maintenance of such a virtual commercial space created the need for a virtual financial system as well. To meet the rapidly growing demands and popularity of e-commerce, conducting monetary transactions solely through physical means became inefficient, especially when all other interactions and transactions occurred electronically. As a result, the financial system had to develop a lasting and innovative solution in response to these changes, leading to the creation of a modern banking system known as electronic banking or e-banking.

Therefore, the idea of e-banking was created to address the challenges of modern commerce and to provide necessary relief to all stakeholders. It is mainly driven by the innovative core banking system, which was established to enable smooth electronic financial transactions across various banks.

The present chapter offers a brief overview of the concept of e-banking, its development over time and the stance of the sector in the present-day scenario with respect to the digital economy initiatives and the renewed call for the pursuit of sustainability in the modern world.

1.2 The Concept of E- Banking

Although the term ‘e-banking’ is sometimes used synonymously with internet banking and online banking, these are not the same. It is, in fact, e-banking, which is a broader term that encompasses both internet banking and online banking. E-banking can thus be understood as a type of electronic, virtual system, connecting a wide network of banks and financial institutions, that allows their customers to access, manage, transfer funds and conduct several other financial activities, through an electronic medium, over a network, usually the internet.

In its very basic form, e-banking services simply include the provision of information about a bank and its services via a website. *More sophisticated e-banking services provide customer access to accounts, the ability to move their money between various accounts and making payments or applying for loans via e-channels* (Shah & Clarke, 2009)¹.

The various financial institutions and the banking sector are vital components of any financial system, and their significance is paramount in the facilitation of a wide range of financial activities. The banking network allows for the optimum distribution of financial resources. *Economic growth & development of any country is mainly influenced by the advancement of the banking sector in that particular nation* (Clonia & Asht, 2016)². The banking industry, in this regard, has been transforming steadily to adapt, improve and meet the present-day requirements of digital and financial inclusivity. Not only is e-banking an efficient way of handling financial transactions, but it has also become an indispensable asset for banks as well as the economy. It has led to an increase in the level of competitiveness within the banking industry and is now one of the most essential and mandatory forms of services being offered by banks today.

¹ Shah, M., & Clarke, S. (2009). *E-banking management: Issues, solutions and strategies*. IGI Global Scientific Publishing.

² Clonia, R., & Asht, M. (2016). E-banking in India: Current and future prospects. *Indian Journal of Applied Business and Economic Research*, 14(7), 2-13.

1.2.1 E-banking timeline: A look into the evolution of the sector

In India, although the conceptualisation of e-banking services began as early as the 1980s, the formal introduction of e-banking services to the general public was initiated only in the 1990s, with the implementation of computerized applications and networking in 1993. Thereafter, ICICI was the first bank to introduce internet banking services to its customers in 1996.

In our country, the initial response to e-banking services was slow and uninteresting. This lack of enthusiasm was largely attributed to a prevailing sense of fear among bank customers with regard to the various security issues associated with online banking transactions. However, over the past decades, the e-banking usage statistics have shown a steady growth rate, especially with the central government's intervention in promoting digital services across the different sectors, including the banking industry. This, coupled with the timely revision and implementation of stringent cybersecurity measures, has led to an improvement in people's attitude towards e-banking services.

Table 1.1: Timeline Showing Introduction of Various E-Banking Services in India

Year/s	Type of E-banking Service	Phase
1984-1988	Introduction of computerized systems in banks, MICR cheques	Phase I
1987	ATM concept initiated by HSBC Bank	
1980-1990s	Debit & credit cards introduced	
1990	ECS was introduced by the RBI	
1996	Introduction of internet banking services to customers by ICICI	Phase II
1997	Shared payment system set up	
1999	Smart cards conceptualised	
2000-2004	SMS banking initiated, Real Time Gross Settlement (RTGS) introduced	
2005	Core banking conceptualised and implemented, National Electronic Funds Transfer (NEFT) introduced	
2010	Immediate Payments Service (IMPS) introduced	

2014	Unstructured Supplementary Service Data (USSD) launched, Pradhan Mantri Jan Dhan Yojana (PMJDY) launched	Phase III
2015	Digital India Program: Cash-less India launched; Unified Payment Interface (UPI) initiated	
2016	Bharat Interface for Money (BHIM) was introduced by National Payments Corporation of India (NPCI), Launch of Aadhaar Enabled Payment System (AePS), Bharat QR launched.	

Source: Compiled from <https://groww.in/banking>, <https://www.digitalindia.gov.in/> , <https://www.bhimupi.org.in>

The evolution of the e-banking sector in India can essentially be divided into three phases: Phase I (1980s-1990), Phase II (1990s- 2010) and, Phase III (2010s to the present). It can be observed that the e-banking sector in our country has experienced steady growth over the years, starting from the late 1980s and into the early 1990s. Like many others, this sector relied heavily on advancements in science and technology, especially concerning digitalization and communication networking, for its progress. The era of digital banking began in the early 2000s. Flagship programmes like the Digital India Initiative, Pradhan Mantri Jan Dhan Yojana (PMJDY) for financial inclusion, and other central government efforts to build a highly connected digital economy, initiated around 2014-2015, seem to have triggered a new wave of innovative measures in the e-banking sector. This led to the introduction of customer-centric and convenience-based digital banking services such as UPI, AePS, Bharat QR and others. Progress in digital technology, combined with the government's enthusiasm for creating not only a digital economy but also a cashless economy, compelled the banking industry to undergo a digital transformation, one of the most significant revolutions in banking. The e-banking sector is now shifting from a primarily electronically driven service delivery model to a fully digitally enabled banking system, expanding its reach and scope across the country and beyond.

1.2.2 Overview of e-banking services

The Indian Government is investing a significant number of resources into its efforts to transform the country's digital prowess. It launched the 'Digital India' campaign on July 1, 2015, under the leadership of Prime Minister Narendra Modi. The main goals of this campaign are to elevate the digital infrastructure, digital literacy rates and digital delivery of services throughout the country, and the rural regions in particular. 'Cashless India' initiative is a flagship programme under Digital India, which aims to promote e-banking practices. Even in Nagaland, the growing dependency on e-banking services is becoming increasingly evident, and can be observed clearly in the ways we perform our day-to-day tasks and activities.

One of the most important attributes of e-banking is that it allows a wide range of financial transactions to be processed electronically and digitally, without the need for physical exchange of cash or other physical forms of money substitutes. This attribute alone has helped to improve and elevate the standards and ease of conducting financial transactions for everyone across the globe, and has elevated the quality of services offered by the banks, as well as the customer experience.

There are many different types of e-banking services that we can enjoy these days. However, the more popular e-banking services in India can be categorised into four major groups as listed below:

- 1. ATM (Automated Teller Machines):** ATMs are computerized devices through which one can withdraw cash, check account balances, make deposits and change several personal account information details such as phone number and Personal Identification Number (PIN), among many other banking services. The ATMs use a telecommunication system and technology to transmit the information to the respective banks and ensure a seamless delivery process for a wide range of services to the customer. Like other e-banking services, an ATM helps to reduce the need for customers to visit banks.

Nowadays, there are also Micro ATMs, which are basically devices used by Business Correspondents (BCs) for delivering basic banking services like cash deposit and withdrawal, fund transfers and balance inquiry. These

Micro ATMs are electronically connected to bank networks across the country and can be used as a micro banking platform. The money for withdrawal, in these cases, is provided by the BCs.

2. **Smart Cards (Debit/ Credit Cards):** These are physical cards that come with a magnetic strip and an embedded microchip, usually issued by a bank to its customers. These cards are connected to the customer's bank account electronically and come equipped with the technology necessary for facilitating secure and speedy transactions while effectively protecting the customer's personal information. The most commonly used type of smart cards by banks is debit and credit cards. One can use debit cards to withdraw cash from ATMs, while both types of cards can be used to pay at Point of Sale (POS) outlets, online shopping and also to carry out other types of electronic financial transactions.
3. **Mobile Banking:** As the popularity of smartphones continue to grow, the banking sector is also creating new opportunities for growth, by creating mobile apps for its customers. With mobile banking, a customer can gain access to several banking services simply from their smartphone. One can easily check account information, transfer large amount of funds, submit grievances and many more, in a very convenient manner, from anywhere and at any time, provided internet connectivity is available.

Banks also offer Short Message Service (SMS) banking services, through which account activity information and other necessary information like One Time Passwords (OTP) are sent to the customer's registered mobile number via text messages. Besides the bank's own official apps, there are many other electronic-wallet or e-wallet services available, which can be linked to their bank accounts and utilised to enjoy many services. In fact, there is a growing demand for e-wallet apps such as PayTM and Google Pay.

The Government of India has also developed an innovative payment service channel *99# specifically for mobile banking, under the Unstructured Supplementary Service Data (USSD) service, which enables users to carry out mobile banking transactions without the need for internet connectivity. Such

initiatives help to promote these services and deepen digital inclusivity in remote regions.

- 4. Internet banking:** These services allow bank customers to conduct a variety of financial as well as non-financial transactions electronically, over the internet, through an electronic device. Internet banking includes facilities such as National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Electronic Clearing Systems (ECS), and Immediate Payment Service (IMPS). Internet banking services can also be used for other financial activities, such as investment.

1.2.3 The dawn of technology

The 21st Century has seen many advancements, particularly in the field of science and technology, that have undoubtedly brought about large-scale transformation of many key industrial sectors. In fact, one can argue that this transformation has brought about significant changes even in our societies, communities and ways of life. The lifestyle change can be seen throughout by observing the changing demands of the customers, who now desire higher levels of comfort, convenience, and simplified operations in the process of consuming goods and services.

To add to this, the increased rate of liberalisation of the industrial sector and growing globalisation, bring about an unprecedented requirement for achieving high levels of inter-connectivity between sectors, industries, countries, households and people. These developments brought about the initiation of a steady and active technological revolution, which continues to gain momentum.

The dawn of technology has been transforming and reshaping the world in leaps and bounds. The development of internet technology, in particular, has led to the creation of numerous possibilities and avenues for innovative changes. Invention of smart devices, fast speed internet, 5G connectivity and e-commerce, have reshaped the world as we know it, into an exceedingly digitalised landscape. Evidently, all activities and businesses, from the smallest undertaking to the biggest conglomerates, have been impacted by this technological revolution. The most evident impact can be seen in the

way our lives have become exceedingly more ‘digital’ or ‘digitalized’ rapidly over the last few years.

The term ‘digitalization’ can be understood to refer to a process of transformation, whereby technology is utilized to convert an existing business model and allow it to improve its revenue generation through optimization of its activities and processes. So, digitalization involves all the innovations and changes that lead to a more digitally inclusive structure. Presently, the conceptualisation of Artificial Intelligence (AI) has begun making new waves across the technological landscape. The technology has permeated the folds of the e-banking system, opening new doors of opportunity for a remarkable future of AI-enabled banking.

1.2.4 E-banking and the new normal in 2020

Ever since the world was hit by the COVID-19 pandemic, the governments of various countries and international health organizations such as the World Health Organization (WHO) have issued numerous directives on how each individual needs to act and behave in order to curb the spread of the virus.

One of the most significant advisories issued in light of the ‘new normal’, post-COVID-19 environment, is the emphasis on maintaining social distances and avoiding personal contact with others. In this regard, the significance of contactless technology grew tenfold. Taking advantage of this dire situation, different banks across the globe have been promoting e-banking and its benefits to their customers.

Since e-banking allows the bank customers to conduct a wide range of banking services, including making various payments, fund transfers, keeping track of account activity, availing loans and so on, it has become one of the most relevant technologies today, the biggest benefit being that customers can handle their finances remotely, in the safety of their homes.

1.2.5 E-banking and sustainable development

The e-banking sector has effortlessly brought together the best aspects of modern technology and traditional banking services, which has in turn made it possible to allow for more accessibility, simplicity, user-friendliness, convenience and

affordability. In this regard, the contributions of the e-banking sector towards the attainment of many sustainability goals for the overall banking industry have been astounding. While there have been many research findings which have indicated a clear positive impact on the natural environment, due cognizance should also be given to the contributions of e-banking towards social sustainability.

Sustainable development, therefore, is as much about improving and upgrading the societies that people live in as it is about preserving the natural environment and ecosystem. The goal of social sustainability is to encourage businesses to have more enriching transactions with their customers and create beneficial links with the society within which they operate.

The e-banking sector, owing to the high accessibility of its services, has the undeniable ability to create a platform whereby a vast majority of the country's population can be accessed, irrespective of region, gender, caste, class or age. And it is the recognition of this potential that the government has initiated and implemented its 'financial inclusivity' policies to start a mammoth attempt to reach every Indian citizen with the basic banking services. Thereby improving the society at all levels through the efforts of making the basic banking facilities available and accessible to all. The convenience offered by e-banking services has helped to promote user financial independence, better distribution of wealth and also assisted in the promotion of entrepreneurship in the state. This will directly impact the economic and financial well-being of the more neglected sections of society, wherein one can finally begin the task of achieving major sustainability goals, such as the eradication of poverty and reduction in inequalities.

1.2.6 E-banking services in light of India's digital economy goals

A digital economy is built through rigorous efforts of digitalization, innovation, transformation, enhanced networking and connectivity. The government of India launched the 'Digital India' program in 2015 to enhance economic development through the formation of an economy and society empowered by digital technology. Since then, an increasingly expanding shift towards online transactions can be observed across the different economic sectors, especially with the growth in e-

commerce activities. In order to become a potent digital economy, it is crucial to first develop the country's digital infrastructure. The banking industry thus plays a key role in the creation of such an infrastructure, particularly in the delivery of its digital payment services via its e-banking platform. E-banking has not only enabled the creation of the country's digital economy infrastructure but can also be considered as a vital component in its development and a catalyst to the digital transformation process, owing to its accessibility, convenience and vast utility. The attainment of India's digital economy goals, therefore, relies on the health of its e-banking sector to a great extent. Currently, as per the Ministry for Electronics and Information Technology's 'India's Trillion Dollar Digital Economy' report, *India's digital economy generates about \$200 billion of economic value annually. If utilised optimally, the country's digital ecosystem is expected to create a digital economy of \$800 billion to \$1 trillion by as early as 2025*³.

Across all the digitalized sectors, the existence of a robust and efficient infrastructure to facilitate financial transactions is paramount in this regard. Therefore, there is an ever-growing need to emphasise the development of the e-banking sector, through which all digital monetary transactions across all the new and old economic sectors will continue to take place.

³ Ministry for Electronics and Information Technology (MEITY), *India's Trillion Dollar Digital Opportunity Report*, (2019), New Delhi, India

1.3 Review of Literature

The literature review process for the present study was carried out with an intent to learn more about the concept revolving around e-banking and also to gain a better understanding of the extent of research on awareness, perception, preferences, satisfaction, challenges and prospects, that has already been conducted on the study area. The literature review was segmented into core areas of focus and has been classified into four distinct sections as follows:

1. E-banking: The start of a new era

Sahu (2014)⁴ stated that information technology (IT) has brought about a revolution in the banking industry, that shifted the focus on development of IT-based products and services by the banks, leading to the introduction of e-banking, which has helped to strengthen the banking sector by improving service quality and altering the manner of doing banking business. She stressed the need for the banks to increase efforts in improving the awareness of the customers regarding the different e-banking services, including the more advanced services as well, which will help in reducing the customers' grievances.

Khalek & Bakri (2017)⁵ found that e-banking is the doorway to a new world of ample opportunities for banks to explore and benefit from. In India, the e-banking services have a profound influence on the ways that banks strategize their operations to aim for more positive economic and social impact. Key factors like convenience, perceived risk, prior internet knowledge, perceived security and ease of use should be considered seriously when developing e-banking models. E-banking services have given banks the opportunity to become leaders in the e-business world.

⁴ Sahu, S. (2014). *Impact of e-banking on operational performance of private and public banks- a comparative study of SBI and ICICI*. (Doctoral dissertation, AISECT University, Bhopal).

⁵ Khalek, Y.A., & Bakri, A. (2017). The e-banking in emerging markets. *International Journal of Development Research*, 07(11), 17186-17192.

Ranjani (2017)⁶ stated that e-banking is the latest technological wonder of the recent past and has helped in greatly enhancing the delivery channels for banking services. It has also led to the introduction of many new services and products, thereby helping the Indian domestic banks to reach worldwide frontiers. Moreover, he stressed the requirement of the banking sector in the present-day scenario, stating that it is almost impossible for any bank to conduct even the simplest of businesses without having the relevant technology backing for its system, thereby further emphasizing the significance of e-banking services.

Jaroliya (2011)⁷ opined that the e-banking sector offers a number of critical advantages over the traditional banking services, particularly in respect of the service delivery channels. It is a revolutionary turning point in the development of the banking sector and will pave the way for the future of e-banking in India. She also expressed that e-banking is set to become the preferred mode for disseminating information and exchanges by banks as well as customers in the near future.

Chouhan (2012)⁸ stated in his study that the e-banking sector is fully equipped with great potential to elevate simplicity and convenience factors among all categories of users as it is evolving into a singular service delivery and information platform. This is a big step towards simplifying the use and delivery of e-banking services and promises great benefits to both banks and customers. Its significance is portrayed in this respect, as it creates a vital step in the evolution of the banking system.

⁶ Ranjani, R.K. (2017). *Service quality assessment of e-banking services in public sector banks with special reference to Madurai district*. (Doctoral dissertation, Bharathiar University, Coimbatore, Tamil Nadu).

⁷ Jaroliya, D. (2011). *Assessment of e-banking products and services- A comparative study of e-banking users of public and private sector banks in Indore*. (Doctoral dissertation, Devi Ahilya Vishwavidyalaya School of Economics, University of Indore, Madhya Pradesh).

⁸ Chouhan, R. (2012). *Study and analysis of security issues in e-banking to obtain a generalized security model*. (Doctoral dissertation, Suresh Gyan Vihar University, Jaipur, Rajasthan).

Kaushal (2011)⁹ in his study, stated that e-banking has enabled banks to handle large volumes of transactions and financial operations in a faster and more efficient manner. He also stated that e-banking helps to promote a healthy competitive environment, thus creating better and more innovative services by the banks to their customers. He observed that banks are heavily dependent on the telecom sector as well as the software industry for their basic infrastructure and the quality of their services. Furthermore, through a comparative analysis between the performance of public and private sector banks with regard to e-banking, he found that there is a vast difference between the two, and that public sector banks are lagging behind both in terms of service quality as well as diversity in offering. There was a significant shortfall in the offering of more advanced e-banking services to their customers by the public sector banks, despite having a greater customer base.

An et al. (2024)¹⁰ found that the effective integration and adoption of modern technology allowed for industries and regions to effectively leverage the digital economy for sustainable development. In essence, their study suggests that technology adoption, such as e-banking, is vital for the sustainable existence of the industry.

Mohammedi et al. (2025)¹¹ found that digital economy elements played a pivotal role in attaining a sustained state of sustainable development. They also stated that digitalization measures brought about positive impact on human development index. Stimulating both socio-economic and environmental performances.

⁹ Kaushal, R. (2011). *Impact of e-banking on operational performance and service quality of banking sector in India*. (Doctoral dissertation, Punjabi University, Patiala, Punjab).

¹⁰ An, Q. et al. (2024). The impact of the digital economy on sustainable development: Evidence from China. *Front. Environ. Sci.*, 12:134147.

¹¹ Mohammedi, W. et al. (2025). The impact of the digital economy on sustainable development in the face of geopolitical risks. *Digital Economy and Sustainable Development*, 3(1).

Shah & Clark (2019)¹² discussed that e-banking is in many ways akin to e-commerce and can even be considered as a form of it. E-banking, being a very recent development continues to be a grey area from a strategic viewpoint; however, it indicates that the leveraging of technological advancement into key strategies for e-banking is vital. In context, although e-banking is simply another way of delivering the same banking facilities, the strategies for enhancing e-banking should be differentiated from those of traditional banking procedures. They also stated that e-banking should be considered as a valuable investment that will bring a lot of benefits for all stakeholders in the years to come.

Reddy & Geetha (2024)¹³ stated that e-banking is a driver for innovative changes and helps foster a rich, viable financial ecosystem, one which opens the doors for a multitude of new opportunities to take shape. They also stated that there is a heavy reliance on the banking sector with regard to economic growth, and as such, ample emphasis needs to be placed towards its continued development. Their study also found that there is a high potential for further growth in the sector and that satisfaction among the customers continues to grow.

¹²Shah, M., & Clarke, S. op cit.

¹³ Reddy, S., & Geetha, M. (2024). A quantitative study on e-banking at SBI. *International Journal of Creative Research Thoughts*, 12(5), 269-278.

2. Customers' awareness, perception and preferences of e-banking services

Nayanajith & Dissanayake (2019)¹⁴ found in their study that the rapid developments in Information and Communication Technology (ICT) have had a major impact on the retail financial services sector, including retail banking activities. The results from their study concluded that there is an undeniable need to increase the rate of customers' awareness regarding e-banking. They suggested that banks should continue to work towards trust building with their customers to achieve a better acceptance rate. They also suggested that further research is required to get a wholesome and wider view of the customers' overall perspective of e-banking services.

Simon (2012)¹⁵ found that the degree of customer awareness about e-banking services varied largely, where awareness about ATM and credit cards was significantly higher than that of phone banking and internet banking. He also found that factors like trust and security play a very prominent role in determining the reach of e-banking. Additionally, as banks rely fully on the IT sector for the delivery of e-banking services, he cautioned that this could lead to serious operational risks for banks if not done properly and cautiously.

¹⁴ Nayanajith, D.A.G., & Dissanayake, R. (2019). E-banking adoption in the context of innovation and e-service quality: A review on concepts and practices. *Journal of Environmental Science, Computer Science and Engineering & Technology*, 8(3), 208-221.

¹⁵ Simon, A.L. (2012). *Reach of e-banking in rural india a study with special reference to central Gujarat region*. (Doctoral dissertation, University of Gujarat, Gujarat).

Bajpai (2015)¹⁶ stated that the bank customers can categorically be divided into two main groups, namely the traditional banking users and the internet banking users, depending on whether or not these customers use e-banking services. He stated that internet banking users make up 55.9% of the world's overall bank user population. It was also found that internet banking services fared better than traditional banking in terms of factors like trustworthiness, convenience, security and geographical flexibility. In this regard, he suggested that proper strategic marketing by emphasizing these factors will help increase consumer awareness and also improve the acceptance rate of e-banking.

Fozia (2013)¹⁷ found that the perception of the customer towards e-banking was affected by the age of the customer. Her analysis showed that the older group of customers were more reluctant to try e-banking, as compared to the younger group, who are keen and interested to try and use these new services.

Kavitha (2018)¹⁸ stated in her research that the new commercial banks have been successful in creating a positive attitude from the customers towards e-banking services. It was found that customers are mostly interested in e-banking because it offers them the ability to experience a wide range of services on a single platform. A significant relationship between income level of the customers and their preference for e-channels was also established.

¹⁶ Bajpai, D. (2015). *A comparative study of customers satisfaction towards e-banking*. (Doctoral dissertation, Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh).

¹⁷ Fozia, (2013). A comparative study of customer perception toward e-banking services provided by selected private & public sector banks. *International Journal of Scientific and Research Publications*, 3(9), 1-5.

¹⁸ Kavitha, S. (2018). *A study on consumer attitude towards e-banking services of private sector banks in Trichirappalli district*. (Doctoral dissertation, Periyar University, Tamil Nadu).

Rajput (2015)¹⁹ remarked that compatibility with customers' lifestyles is a very important aspect to be considered when vying for means and ways to improve customers' perception about e-banking services. He found that bank customers often apply an unserious and lackadaisical approach when it comes to e-banking service adoption, and that leisure use of the services tends to be a recurring element in many instances. This indicated a higher degree of acceptance and comfort levels with the use of the services among the customers.

Safeena et al. (2010)²⁰ stated that banks were led to adopt alternative delivery systems for their services to attract and improve their customers' perception. Given that the present-day market demands more and more customer-oriented approaches, understanding customers' perception has become a priority. Their study also throws light on the perceived acceptance of e-banking services among customers, which they found is affected by the customer's perceived usefulness of the services, awareness and perceived security.

Laxman (2015)²¹ has found that there exists a range of levels of priority for different e-banking services among different customers. Owing to the extensive range of e-banking service categories and sub-categories, customers may give more importance to certain services over others. There are therefore differences in preferences, awareness levels and e-banking usage patterns among the bank customers. To establish a better understanding of the customer's idea of e-banking services, there is a need to further investigate these elements of e-banking usage behaviour among bank customers.

¹⁹ Rajput, U.S. (2015). Customer perception on e-banking. *Pacific Business Review International*, 8(4), 85-94.

²⁰ Safeena, R. et al. (2010). Customer perspective on e-business values: a case study on internet banking. *Journal of Internet Banking and Commerce*, 15(1), 1-13.

²¹ Laxman, T.C. (2015). *A study of customer's perception and awareness about e-banking in Solapur district*. (Doctoral dissertation, Solapur University, Kondi, Maharashtra).

Clonia & Asht (2016)²² drew conclusions from their findings and predicted that e-banking services will become the chosen and most preferred mode of banking in the future. They recommended the facilitation of better design of the services in accordance with demographic factors such as age and gender in order to ensure a more rewarding experience for users.

Yusuf & Asan (2023)²³ stressed that the service quality of e-banking services is the defining element of customers' attraction and retained interest in the services, and that the service quality, on the other hand, is measured to a great extent by the 'friendliness' of its delivery. They also stated that redefinition of existing services to elevate the customer's experience is essential for positive perception in the long run.

3. Quality of e-banking services and customers' satisfaction

Mahadevan (2002)²⁴ stated that the banking sector, being a high-involvement industry, relies heavily on the perceived quality of its services by the customers, for its success. There is a constant requirement for banks to push the standards of their service quality to expand and retain the customer base. As the industry's service quality standards continue to increase over time, customers are beginning to demand more personalized support from the banks. He stated that the focus of the banks should now be to deliver better and better value to their customers through their services.

²² Clonia, R., & Asht, M. (2016). op cit.

²³ Yusuf, H.M., & Asan, S.J. (2023). Customer perception on service quality of public and private banks Madurai district in Tamil Nadu. *Journal of Emerging Technologies and Innovative Research*, 10(10), 763-769.

²⁴ Mahadevan, S. (2002). *Commitment to service quality and customer satisfaction in Indian banking sector*. (Doctoral dissertation, University of Madras, Tamil Nadu).

Lohana (2011)²⁵ observed that the usage of internet technology by banks while delivering their services played a major role in building positive and long-lasting relationships with their customers, and good quality services can help in enhancing their retention rates considerably. She also stated that the prospects of e-banking far outweigh its difficulties and challenges.

Hammoud et al. (2018)²⁶ investigated the correlation between e-banking service quality and customer satisfaction and attempted to identify key dimensions of e-banking services that had direct impact on customer satisfaction. They found that variables such as efficiency, ease of use, reliability, security, privacy, responsiveness and communication all correspond to quality service and had a significant effect on customer satisfaction.

Wahyudi & Ruswandi (2021)²⁷ put forward the importance of the relationship that exists between the quality of services, customer loyalty and satisfaction. They claimed that banks must emphasise implementing strategies that focus on improving service quality so that customers do not shift or move to other competitors. They maintained that service quality standards must be maintained to achieve satisfaction, which in turn creates a positive impact on loyalty and thereby achieves higher retention rates.

²⁵ Lohana, P.R. (2018). *E-banking problems and prospects with special reference to Marathwada region*. (Doctoral dissertation, Swami Ramanand Teerth Marathwada University, Nandan, Maharashtra).

²⁶ Hammoud, J. et al. (2018). The impact of e-banking service quality on customer satisfaction evidence from the Lebanese banking sector. *Sage Open*, 8(3), 1-12.

²⁷ Wahyudi, & Ruswanti, E. (2021). The effect of service quality, trust and satisfaction of banks customer loyalty. *International Journal of Research and Review*, 8(4), 293-307.

Talukder (2019)²⁸ in his article, has expressed that as the environment continues to change with time and advancement, banks have been steadily trying to keep up with the changes through their adoption of technology and numerous innovative strategies. He also stated that in this process of adaptation, the banks have come to realize that customer satisfaction can be achieved through the delivery of unique and essential product and service characteristics, and using customers' perception, aspirations as well as offering competitive alternatives.

Firdous & Farooqi (2017)²⁹ stated in their article that the internet is the cheapest form of delivery channel for banking products and services to reach their customers effectively. They used the E-SQUAL and E-RecS-QUAL models developed by Parasuraman et al. for the purpose of their study and found out that efficiency, privacy and website design had the most impact on customer satisfaction.

Dave (2013)³⁰ found that a large majority of the bank customers are satisfied with the services and performance of the banks on several aspects, except for one aspect, which is the amounts that are deducted as charges for utilizing various services, the reason for this being that customers deemed it as excessive and unnecessary.

²⁸ Talukder, A.K. (2019). Quality of banking services and customer satisfaction. *Science, Technology and Development Multidisciplinary Journal*, 8(11), 197-198.

²⁹ Firdous, S., & Farooqi, R. (2017). Impact of internet banking service quality on customer satisfaction. *Journal of Internet Banking and Commerce*, 22(1), 2-17.

³⁰ Dave, P. (2013). *A study of customer satisfaction in banking industry with special reference to the public sector banks and private sector banks*. (Doctoral dissertation, Saurashtra University, Rajkot, Gujarat)

Ling et al. (2016)³¹ stated that customer satisfaction is an important factor for prolonged usage of services. Thus, the banking industry needs to examine its e-banking services, especially with regard to aspects relating to content and web design, convenience and speed. They stated that the problems in attaining higher e-banking usage rates are directly linked to the dissatisfaction that exists among customers, and as such, addressing these issues will lead to better performance of the sector.

4. Challenges of e-banking services

Alnaas (2022)³² found that there are several systematic barriers which deter the growth and advancement of e-banking as a sector, which includes regulatory barriers, electronic barriers and cultural barriers, which indicated that infrastructural deficiencies are not the only factors affecting e-banking negatively but rather the perceived usefulness, perceived comfort and customer's psyche associated with traditional banking practices also played a significant role in determining adoption of e-banking as well as satisfaction through usage. He suggested that there should be better collaboration between the government and the sector, higher levels of training and awareness programs and bank-wise strategic planning for improvement of their own services.

³¹ Ling, G.H. et al. (2016). Understanding customer satisfaction of internet banking: a case study in Malacca. *Procedia Economics and Finance*, 37, 80-85.

³² Alnaas, H. (2022). The barriers of adoption the e-banking in the libyan banks- a case study of commercial banks in Tobruk city. *Open Journal of Business and Management*, 10(1), 501-524.

Mousa et al. (2018)³³ determined that investment in infrastructure development and dissemination of adequate information about e-banking services is a preliminary requirement for its growth. Additionally, enhancement of customers' confidence through assured quality and security should be another priority. Their findings suggested that the three core issues with regard to e-banking are thus concerned with lack of familiarity with the system and its facilities, low levels of existing trust and inadequate infrastructure.

Kaushal & Balaini (2016)³⁴ opined that major challenges to e-banking are related to security issues, lack of trust, language barriers and inadequate literacy levels. They suggested the overall assessment of not just systematic challenges but also environmental issues in order to push the e-banking sector towards the desired direction of growth.

Adepoju & Adeniji (2020)³⁵ found that perceived usefulness of e-banking services among customers plays a pivotal role in their acceptance. As far as the success of e-banking is concerned, instilling a positive attitude among customers with regard to the services is as important as ensuring good infrastructural factors, such as proper network connectivity. Reduction in service disruptions will elevate the comfort and security associated with the services and thus offer long-term advantages.

³³ Mousa, A.H. et al. (2018). determinants of customer acceptance of e-banking in iraq using technology acceptance model. *TELCOMNIKA Telecommunications, Computing, Electronics and Control*, 19(2), 421-431.

³⁴ Kaushal, R. (2011) *Impact of e-banking on operational performance and service quality of banking sector in India*. (Doctoral dissertation, Punjabi University, Patiala, Punjab).

³⁵ Adepoju, A., & Adeniji, A. (2020). Technology acceptance of e-banking services in an unnatural environment. *SEISENSE Journal of Management*, 3(3), 34-50.

Monisha et al. (2017)³⁶ stated in their article that the e-banking sector in India is in dire need of a new wave of innovative measures to tackle the slew of existing challenges regarding security issues, lack of knowledge about e-banking among customers and unsupportive infrastructure. They also stated that conscious and consistent efforts must be made with regard to maintaining world-class standards in terms of services, facilities and quality to improve e-banking acceptance and adoption.

Tungal (2019)³⁷ stated that banking services are prominent in urban areas but have yet to expand their reach to a vast majority of the rural areas in the country. She opined that the rural regions constitute a form of untapped market that should be addressed promptly. She also stated that timely and adequate dissemination of information regarding the various facilities and benefits of e-banking services is required to address the awareness and usage issues.

³⁶ Monisha, et al. (2017). Electronic banking in India: innovations, challenges and opportunities. *International Journal of Engineering Research & Technology*, 5(11), 1-8.

³⁷ Tungal, G. (2019). Challenges and opportunities of e-banking in India. *International Journal of Research and Analytical Reviews*, 6(1), 237-241.

1.4 Statement of the Problem

From the existing literature, we can understand to a great extent the relevance of e-banking as a research topic today and the significance of its role in the functioning of the modern economy. Several research attempts have been made to study the key aspects of customers' perspectives on e-banking services, including awareness, perception, preferences, and satisfaction. The findings from these studies offer a relatively good insight into customer psyche; however, although multiple studies have been conducted separately to study these aspects of customers' attitude towards e-banking, a comprehensive study on the topic, attempting to understand the overall customers' perspective, was not found. Moreover, despite its obvious significance in the present-day scenario, at the national as well as international levels, intensive research on the study of e-banking services in the state of Nagaland has not been attempted.

Therefore, there is a need to gain deeper knowledge about the scenario of e-banking in Nagaland through the customer's perspective, by understanding the customers' awareness, perception, preferences and satisfaction towards the various e-banking services, while also simultaneously attempting to derive a clearer picture with regard to the quality of e-banking services and whether the need and level of dependency on e-banking is increasing significantly, to the extent that the customers will consider it a necessity.

In this regard, the following research problems were observed:

1. The absence of a research study attempting to gain a comprehensive understanding of the overall customers' perspective of e-banking, with regard to awareness levels, perception, preferences and satisfaction towards the different e-banking service categories.
2. The obvious gap in existing knowledge with regard to the scenario of e-banking services in Nagaland: present status, existing challenges and prospects.
3. No prior research was conducted for the analysis of perception through measurement of customers' experience of using e-banking services with their pre-disposed expectations of the same services.

The researcher thus aims to address the above research problems through the development of the following research questions:

1. What is the existing level of customer awareness of e-banking services?
2. What is the nature of customers' perception towards e-banking services?
3. What is the nature of the preferences of the customers with regard to e-banking services usage?
4. What is the existing level of satisfaction felt by the customer towards the e-banking services?
5. What is the scenario of the e-banking sector in Nagaland?
6. What are the major challenges of the e-banking services in Nagaland?
7. What is the prospect of growth and development of e-banking services in Nagaland?

1.5 Significance of the Study

E-banking has been acknowledged as one of the biggest revolutions that has transformed the banking industry. Following the adoption of technology for developing new, innovative and effective virtual delivery channels for the banking products and services, e-banking has been steadily gaining ground across the entire globe.

In India, the Central Government has been working tirelessly to attain the status of a digital society through its 'Digital India' campaign. E-banking has been a major area of interest under this initiative, and a flagship programme, 'Cashless India', has also been launched with the sole intention of promoting e-banking services, with the hopes of achieving a less-cash economy. The government has launched several schemes and initiatives, such as Pradhan Mantri Jan Dhan Yojna, Aatmanirbhar Bharat and other similar initiatives, under the Digital India efforts, which are aimed at thrusting India to allow it to be at par with the rest of the world in terms of digital knowledge and empowerment.

With all focus being aimed towards encouraging a cashless and digital economy through the facilitation of an efficient e-banking system, it is only apt to

conduct thorough research regarding the same, to gain a better understanding of the existing scenario while attempting to identify ways to improve the system altogether.

The purpose of this study was to gain useful and factual insights with regard to the overall scene of e-banking practices in the state of Nagaland. To ascertain the position and status of the e-banking sector in the state, this study attempts to -

1. Assess the awareness, likelihood to adopt, preferences and popularity of e-banking services
2. Analyse customer perception and satisfaction to determine the key areas of strengths and weaknesses being faced by the banks in delivering their e-banking services to the customers.
3. Identify the key challenges thwarting the growth of the e-banking sector in Nagaland.

1.6 Objectives of the Study

The present study, as mentioned before, revolves around the different themes surrounding the banking industry, with the primary study area being focused on the e-banking services. Therefore, the overarching idea of the present study is to shed a brighter light on the e-banking sector of the state. With this in mind, the specific objectives of the study were framed, keeping in line with the primary objective of projecting the customers' perspective of the services.

The objectives of the present study are as follows:

1. To give an overview of the banking sector and e-banking services in Nagaland.
2. To study the customers' awareness and perception of e-banking services.
3. To study the customers' preferences and satisfaction with e-banking services.
4. To identify the challenges of e-banking services in Nagaland

1.7 Hypotheses

It was determined that the value of the research should be demonstrated through the formulation of meaningful hypotheses based on the study's objectives. Since this study aims to provide a clearer understanding of customers' perspectives of

e-banking services, two main areas, namely awareness and satisfaction, were identified as the basis for developing the primary hypotheses of the study.

1. **Hypothesis I (H1):** There is a high level of awareness of e-banking services in Nagaland.
2. **Hypothesis II (H2):** There is a high level of satisfaction of e-banking services in Nagaland.

During the course of the present study, it was also determined that the construction of additional hypotheses for further substantiating the findings and results was necessary. Hence, the following additional hypotheses were framed to determine if statistically significant differences in the awareness levels and satisfaction levels among the e-banking users existed, on the basis of selected demographic factors such as gender, age, occupation, educational qualification and monthly income.

1. **Hypothesis 3 (H₀₃)-** There is no significant difference in awareness levels of e-banking services with respect to gender.
2. **Hypothesis 4 (H₀₄)-** There is no significant difference in awareness levels of e-banking services with respect to age.
3. **Hypothesis 5 (H₀₅)-** There is no significant difference in awareness levels of e-banking services with respect to educational qualification.
4. **Hypothesis 6 (H₀₆) -** There is no significant difference in awareness levels of e-banking services with respect to occupation.
5. **Hypothesis 7 (H₀₇):** There is no significant difference in satisfaction levels of e-banking services with respect to gender.
6. **Hypothesis 8 (H₀₈):** There is no significant difference in satisfaction levels of e-banking services with respect to age.
7. **Hypothesis 9 (H₀₉):** There is no significant difference in satisfaction levels of e-banking services with respect to the monthly income level.
8. **Hypothesis 10 (H₁₀):** There is no significant difference in satisfaction levels of e-banking services with respect to educational qualification.

1.8 Research Methodology

The present study attempts to bring forth a clear and factual picture of the banking system in the state of Nagaland, with particular emphasis on describing the nature and status of the incredibly relevant and important e-banking sector. As previously mentioned, the present research area, i.e., e-banking in Nagaland, has seen very little exploration and investigation. However, the impact of e-banking services in our present day is undeniable and therefore deserves conscious and deliberate endeavour to understand the depth of this extraordinary phenomenon.

Thus, an empirical approach was undertaken to carry out this present study. Taking due consideration of the research problems at hand and the objectives outlined, the following key aspects of the research methodology adopted have been presented below:

1.8.1 Area of study

The present study covers the two districts of Kohima and Dimapur. The districts were selected keeping in mind the nature of distribution of bank branches, ATMs and density of banking activities in the state. Data collected indicated that the majority (90%) of the total number of bank branches and ATMs in the state were clustered in these two districts (in 2020). Moreover, the districts of Kohima and Dimapur are the only two districts in Nagaland having a composition that includes all three types of areas: rural, semi-urban and urban. Hence, all these factors indicate that these two districts represent the most active zones of banking and e-banking services in Nagaland.

Moreover, Kohima, being the state capital and administrative hub, and Dimapur, being the commercial hub of the state, also accounted for a vast diversity in the population, due to the high rate of rural-urban migration to these districts. Many people move there from other parts of Nagaland for economic and social reasons. Therefore, the researcher judged it best to consider Kohima and Dimapur as the study area to obtain the most representative sample of the overall population of the state.

1.8.2 Sampling design and size

As the purpose of the present study is to project the nature of e-banking in the state of Nagaland, an adequate sample needed to be determined so that accurate inferences about the population could be drawn. In this regard, a logical pursuit to determine the sample size by looking at the total population of the state was implemented.

The process involved taking into consideration the projected population of Nagaland in 2019, which was estimated at roughly 20.63 lakhs. Therefore, at 95% confidence level with 5% margin of error, the calculated necessary sample size for a population of 20.63 lakhs was 385. Hence, for the present study, this number was rounded to 400 respondents for the determination of the requisite sample size.

As the focus of the present study was on the e-banking sector and banking industry in general, it was decided that only those individuals who were bank customers (had at least one operative bank account in any bank) should be considered to be included in the sample. Hence, the bank customers residing within the study area, i.e., Kohima and Dimapur, were taken as the population, and a multi-stage sampling technique was used for the selection of a total of 400 respondents from that defined population. The sample consisted of 200 respondents, each from Kohima and Dimapur respectively, on whom the questionnaire survey was conducted. Additionally, 50 bank officials were randomly selected and interviewed separately; however, a conscious effort was made to include as many different banks as possible when approaching the bank officials for the interview.

The banks visited during the course of the interview were:

1. Axis Bank
2. Bank of Baroda
3. Bank of Maharashtra
4. Canara Bank
5. Central Bank of India
6. Federal Bank
7. HDFC Bank

8. ICICI Bank
9. IDBI Bank
10. Indian Bank
11. IndusInd Bank
12. Nagaland State Cooperative Bank
13. Punjab and Sind Bank
14. Punjab National Bank
15. State Bank of India
16. UCO Bank

After the logical structure of the sampling design was determined, the research work proceeded with the multi-stage sampling process in three distinct stages as follows-

Stage I- Selection of representative districts to determine the area of study. Out of the 17 districts, the districts of Kohima and Dimapur were selected based on the aforementioned reasons.

Stage II- Determination of the requisite population took place, wherein individuals with operative bank accounts were segregated from those without operative bank accounts. In this stage, a random sampling technique was used to connect with potential respondents; however, it involved a secondary screening stage where the deliberate elimination of prospects who didn't fit the criteria of the study took place. This was done to maintain the integrity of the required composition of the sample. Thus, the 400 respondents were selected in this manner.

Stage III- Further, segregation of the respondents was done. In this stage, the division of users and non- users of e-banking services was carried out to best attain the main purpose of the present study and also effectively realize its objectives.

1.8.3 Instruments and sources of data collection

Both primary and secondary sources were used to collect data. Primary data was collected through a combination of questionnaire survey method, observation and interview methods.

The structured questionnaire used consisted of a total of 33 questions, including both close-ended and open-ended questions.

A pilot study was conducted with 50 respondents from the study area. The findings from the pilot survey served as a guide for restructuring the questionnaire. Based on the results, recommendations and suggestions, necessary modifications were made to the questionnaire, wherein a few additional questions were incorporated to improve the quality of data collected. Some existing questions that were found to be repetitive were removed, while some other questions were modified to fulfil the purpose of the study. A few other necessary changes were made to the parameters used in order to enhance their reliability and consistency.

The first part of the questionnaire consists of a common segment designed to collect information about the demographic profile of the respondents. Thereafter, the questionnaire was structured such that different sets of questions were put in place, separately, for the users and non-users of e-banking. The questions were logically arranged to collect data systematically for analysis of awareness, preferences, perception, satisfaction and other relevant information related to e-banking usage.

The interview schedule used for the purpose of interviewing 50 bank officials consisted of a set of 22 open-ended questions. The schedule was designed for the collection of primary information related to the internal functioning of the banks and to garner an idea about the e-banking policies of the different banks.

For the collection of secondary data, reports from banks, government institutions, books, articles, journals, theses, periodicals and websites were used. Some of the major sources used for the collection of secondary data are given below:

- Background paper, quarterly reports, minutes of meetings held and other relevant publications made by the State Level Bankers Committee (SLBC).
- Reports, press releases and publications by the Ministry of Electronics and Information Technology, Government of India.
- Reports and data published by the Reserve Bank of India (RBI)
- Reports from NABARD

- Reports and data from central schemes such as Pradhan Mantri Jan Dhan Yojna (PMJDY), Sukanya Samriddhi Yojna (SSY), Pradhan Mantri Mudra Yojna (PMMY).
- Publications relating to previous research conducted on e-banking

1.8.4 Tools for data analysis

The primary data was collected using a combination of different data measurement and scaling techniques, such as Likert scale (both 5-point Likert scale and 3-point Likert scale were used), ranking scale, nominal scale and ordinal scale.

Data related to customers' preferences were primarily collected using a ranking scale to assign different ranks to different options based on preferences. Data related to customers' awareness was collected using a nominal scale (aware and unaware), the data collected was therefore categorical in nature. The data related to customers' perception and satisfaction levels were collected using Likert scales. To analyse perception, a 3-point Likert scale was employed, and a 5-point Likert scale was used for the analysis of satisfaction levels.

For the measurement of awareness levels of e-banking services, 29 key facilities of the e-banking services were taken as the parameters, and 13 service quality parameters were used for the measurement of perception and satisfaction levels.

Cronbach's Alpha test of reliability was employed to assess the internal consistency of the parameters and to ensure the reliability of the instrument used in the study. The items designed to analyse customer awareness yielded a reliability coefficient of 0.917. Similarly, the instruments for analysing customer perception and satisfaction produced a high reliability score of 0.922 (ATM), 0.941 (Internet Banking), 0.940 (Debit/Credit Card) and 0.938 (Mobile Banking). These values, all well above the accepted threshold of 0.70, confirm that the instruments used in this study possess strong internal consistency and are highly reliable

Both quantitative and qualitative approaches were used for data analysis and interpretation. Use of tables, graphs and charts for the representation of the primary

and secondary data was undertaken. The data collected was analyzed using the following techniques:

- Percentages
- Averages
- Descriptive Statistics: measures of central tendency, measures of frequency distribution

Based on the type of data generated, in alignment with the objectives of the study, the statistical tests used in the present study were:

- **One-Proportion Z-Test-** This test was used primarily for testing the validity of the two main hypotheses of the present study, i.e., Hypothesis I (H₁) and Hypothesis II (H₂).
- **Pearson's Chi-Square Test-** This test was used to determine if any statistically significant differences existed with regard to awareness levels for all the different e-banking services based on gender, age, educational qualification and occupation. It was also used for the same purpose, but with regard to satisfaction levels on the basis of gender. It was applied to test the validity of Hypothesis 3 (H₀₃), Hypothesis 4 (H₀₄), Hypothesis 5 (H₀₅), Hypothesis 6 (H₀₆) and Hypothesis 7 (H₀₇).
- **Kruskal-Wallis Test-** This test was used to determine whether any statistically significant differences existed with regard to satisfaction levels for different e-banking categories based on age, educational qualification and monthly income. It was applied to test the validity of Hypothesis 8 (H₀₈), Hypothesis 9 (H₀₉) and Hypothesis 10 (H₁₀).

All these analyses were carried out using MS Excel and SPSS software for better accuracy and reliability.

1.9 Chapterization

To facilitate a systematic and coherent presentation of the research work, the entire study has been divided into 6 chapters as outlined below-

Chapter I- Introduction: E-Banking Services

The first chapter outlines the introduction to the conceptual framework of e-banking and its relevance in the functioning of the modern world. It throws light on the impact of e-banking in the context of the pursuit of sustainability goals and the digital economy. The chapter also includes a review of literature, a statement of the problem, significance of the study, objectives of the study, hypotheses, research methodology and scheme of chapters to be followed.

Chapter II- Bank Profile and Scenario of E-banking Services in Nagaland

The second chapter provides an overview of the banking system in Nagaland, highlighting the types of banks operating in the state and the nature of their distribution. It further examines the current status and functioning of the e-banking sector, with particular emphasis on customer usage patterns. In addition, the chapter discusses initiatives related to financial literacy and inclusion, digitalization efforts, and the recent trends shaping the banking landscape in Nagaland.

Chapter III- Analysis of Customers' Awareness and Perception of E-Banking Services

The third chapter is divided into two core sections. The first focuses on the analysis of primary data to assess the awareness levels of different e-banking service categories, while the second deals with the analysis of customers' perception towards e-banking services. This chapter also incorporates the testing of Hypotheses I, 3, 4, 5 and 6.

Chapter IV- Analysis of Customers' Preference and Satisfaction of E-Banking Services

The fourth chapter is also structured around two core areas. The first section presents the results of the data analysis relating to customers' preferences for different

e-banking services, while the second section examines the satisfaction levels across various e-banking service categories. In this chapter, Hypotheses II, 7, 8, 9 and 10 were tested.

Chapter V- Challenges of E-Banking Services in Nagaland

The fifth chapter seeks to identify the major challenges confronting the e-banking sector in Nagaland. It examines the difficulties and barriers to the growth of e-banking services, many of which stem from the state's predominantly rural landscape. The chapter further highlights the nature and types of challenges faced by both banks and their customers. For this purpose, primary data obtained from interviews were analysed and interpreted.

Chapter VI- Summary and Conclusion

The final chapter presents a conclusive overview of the study. It provides a summary of the key research findings and the inferences drawn from them. The sixth chapter also offers a series of suggestions aimed at facilitating further development of the e-banking sector. In addition, the limitations of the study, the contributions of the study and the scope for future research are highlighted. The chapter concludes with the closing remarks of the study.

CHAPTER II

BANK PROFILE AND SCENARIO OF E-BANKING SERVICES IN NAGALAND

2.1 Introduction

In alignment with the first objective of the present study, Chapter II is devoted to providing a comprehensive overview of the banking sector in Nagaland, with particular emphasis on e-banking services. It highlights their development, examines their impact on the banking and financial environment, and discusses the current scenario of their usage in the state.

2.2 Overview of Banking Sector Profile in Nagaland

Nagaland's banking sector, like any other, is composed of many different types of banks, all functioning independently, yet in a highly coordinated manner. The banking sector offers a wide range of services to meet the demands and requirements of the population, since the state is mostly comprised of rural regions where infrastructural facilities remain subpar. Nonetheless, the banking sector commands a strong presence in the state's financial ecosystem and plays a vital role in promoting and improving the financial inclusion progress of Nagaland.

The banking profile data of Nagaland is well presented in Table 2.1, given below. The state is composed of a vibrant banking sector primarily composed of public sector banks, private sector banks, regional rural banks and cooperative banks. It also includes a few small finance banks. As of FY 2024-25, data shows that a total of 249 bank branches were established in the state. The banking sector recorded a significant value of Aggregate Deposits in FY 2024-25, amounting to Rs 18,78,865.05 Lakhs and Total Advances amounting to Rs 11,43,305.70 Lakhs in the same time period. The majority of these advances were completed towards agriculture and MSME sectors in Nagaland.

Table 2.1: Details of Banking Profile in Nagaland for FY 2024-25 (Amount in Rs. Lakhs)

Profile	Public Banks	Private Banks	RRBs	Co-op Banks	Small Finance Banks	NEDFi/R IDF	Total
Branch Network	132	74	12	24	7	0	249
Aggregate Deposit (D)	1258610.86	486365.64	17006.41	114764.12	2118.02	0.00	1878865.05
Total Advances inc.	874820.23	166985.71	7859.44	78820.2	743.31	14076.81	1143305.70
Credit Utilize							
CD Ratio (CDR2)	69.51	34.33	46.21	68.68	35.09	0.00	60.85
Priority Sector (PS)	169477.71	37363.38	5385.09	61299.99	726.62	14076.81	288329
Advances							
% to Total Advances	19.37	22.38	68.52	77.77	100	100	25.22
Adv. To Agriculture (PS)	32912.11	3830.04	1623.03	53351.76	42.31	14076.81	105836.06
% to Total Advances	3.76	2.29	20.65	67.69	5.69	100	9.26
Adv. To MSME Sector (PS)	123934.34	30816.35	3205.99	407.60	684.31	0.00	159048.59
% to Total Advances	14.17	18.45	40.79	0.52	92.06	0.00	14.08
Adv. To Other	12631.26	2716.99	556.07	7540.63	0.00	0.00	23444.95
Priority Sector (PS)							
% to Total Advances	1.44	1.63	7.08	9.57	0.00	0.00	2.08

Source: SLBC Background Paper_March 2025 https://slbene.nic.in/nagaland/booklet/BACKGROUND%20PAPER_MARCH%202025_Full.pdf

2.2.1 Types of banks operating in Nagaland

When looking at the banking sector in Nagaland, we find that there exists a wide range of banking financial institutions to cater to the needs of the residents. Some of these are:

1. Commercial Banks:

1. Public Banks: These are banks that are owned by the government. The different types of public banks operating in Nagaland in present are:

1. State Bank of India (SBI)
2. Bank of Baroda (BOB)
3. Bank of India (BOI)
4. Bank of Maharashtra (BOM)
5. Canara Bank (CAN)
6. Central Bank of India (CBI)
7. Indian Bank (IND)
8. Indian Overseas Bank (IOB)
9. Punjab National Bank (PNB)
10. Punjab & Sind Bank (PSB)
11. United Commercial Bank (UCO)
12. Union Bank of India (UBI)

2. Private Banks: These include those banks that fall under the private ownership category. The private banks operating in Nagaland include:

1. AXIS Bank (AXIS)
2. Bandhan Bank (BAND)
3. Federal Bank (FED)
4. Housing Development Finance Corporation Bank (HDFC)
5. Industrial Credit and Investment Corporation of India (ICICI)
6. Industrial Development Bank of India (IDBI)
7. Infrastructure Development Finance Company Bank (IDFC)
8. IndusInd Bank (INDUS)
9. South Indian Bank (SIB)
10. Yes Bank (YES)

2. **Regional Rural Banks (RRB):** These banks offer their services in the rural and semi-urban regions of the country. There is only one operational RRB in Nagaland.

1. Nagaland Rural Bank (NRB)

3. **Cooperative Banks:** These categories of banks refer to those which are registered under the Co-operative Societies Act of 1912, and work largely on a non-profit, no-loss basis and focus on the provision of financial assistance to various groups such as entrepreneurs, small businesses and others.

1. Nagaland State Cooperative Bank (NSCB)

4. **Small Finance Banks:** The main objective of this category of banks is to serve as a platform for financial assistance to the often-neglected sections of the population including small businesses and low-income individuals.

1. Evangelical Social Action Forum Bank (EAF)

2. North East Small Finance Bank Limited (NESFB)

2.2.2 Banking infrastructure

Nagaland, like any other state located in Northeast India, experienced a gradual expansion of banking services over the past two decades. The state has a wide range of banking and financial institutions operating across its districts. Banking penetration has improved, yet significant disparities remain between the urban/semi-urban centres and rural (remote) areas.

**Table 2.2: District-Wise Distribution of Branches Report of Nagaland
(FY 2024-25)**

Sl/No.	District Name	Branch			
		Rural	Semi-Urban	Urban	Total
1	CHUMOUKEDIMA	11	14	0	25
2	DIMAPUR	4	14	43	61
3	KIPHIRE	2	2	0	4
4	KOHIMA	9	47	0	56
5	LONGLENG	3	1	0	4
6	MOKOKCHUNG	14	11	1	26

7	MON	9	6	0	15
8	NIULAND	2	0	0	2
9	NOKLAK	1	1	0	2
10	PEREN	5	1	0	6
11	PHEK	5	4	0	9
12	SHAMATOR	2	0	0	2
13	TSEMINYU	2	1	0	3
14	TUENSANG	3	4	0	7
15	WOKHA	6	8	0	14
16	ZUNHEBOTO	7	6	0	13
Grand Total		85	120	44	249

Source: SLBC Background Paper_March 2025

https://slbcne.nic.in/nagaland/booklet/BACKGROUND%20PAPER_MARCH%202025_Full.pdf

The banking sector in Nagaland is characterised by irregularities and unevenness in the distribution of banks and bank branches across the different districts. While the bank branch coverage has reached all the different districts, there appears to be a high concentration of the total bank branches in the districts of Kohima and Dimapur. This may be attributed to the higher rate of urbanisation occurring in these two districts as compared to the others, since infrastructural facilities like quality of roads, availability of resources and power, among others, play an important role in determining the feasibility of setting up brick-and-mortar bank branches and/or other facilities.

The data presented in Table 2.2 clearly indicate that Dimapur district has the highest number of bank branches (61), followed closely by Kohima (56). Mokokchung and Chumukedima districts have 26 and 25 bank branches operating within their territories. Chronologically, the list is then followed by Mon (15), Wokha (14) and Zunheboto (13). All the nine other remaining districts have less than 10 operational bank branches each, wherein Phek has a total of 9 bank branches, Tuensang with 7, Peren with 6, Longleng and Kiphire with 4 bank branches each, Tseminkyu with 3 bank branches only, whereas Niuland, Noklak and Shamator have only 2 operational bank branches each.

Moreover, it is also indicated that 65.9% of the bank branches are set up in semi-urban and urban areas, and the remaining 34.1% are set up within the rural regions. This data reveals another aspect of the irregularities in the bank branch distribution system within the state.

Evidently, the data shows that there is an urgent need for improving the bank branch network in Nagaland. Steps need to be taken to establish adequate bank branches in each district, and also to re-evaluate the distribution among rural, semi-urban and urban areas. This development alone will have a significant impact on improving the quality of life and accessibility to banking resources in the different districts, and may even contribute towards acquiring a more evenly paced economic development rate across the state of Nagaland.

**Table 2.3: Bank-Wise Position of Branches Report of Nagaland
(FY 2024-35 as on 31/12/24)**

Sl/No.	Bank Name	Branch			
		Rural	Semi-Urban	Urban	Total
1	BOB	5	6	3	14
2	BOI	1	1	1	3
3	BOM	0	1	0	1
4	CAN	1	5	2	8
5	CBI	2	4	1	7
6	IND	3	3	1	7
7	IOB	0	1	0	1
8	PNB	0	2	3	5
9	PSB	0	1	2	3
10	SBI	44	22	7	73
11	UCO	2	4	2	8
12	UNI	0	1	1	2
Public	Total	58	51	23	132
1	AXIS	0	14	3	17
2	BAND	3	6	3	12
3	FED	0	2	1	3
4	HDFC	0	9	3	12

5	ICICI	5	6	2	13
6	IDBI	1	5	1	7
7	IDFC	0	1	2	3
8	INDUS	0	1	2	3
9	SIB	0	0	1	1
10	YES	1	1	1	3
Private	Total	10	45	19	74
1	ESAF	0	1	1	2
2	NESFB	1	3	1	5
Small FB	Total	1	4	2	7
1	NRB	9	4	0	13
RRB	Total	9	4	0	13
1	NSCB	7	16	0	23
Grand	Total	85	120	44	249

Source: SLBC Background Paper_March 2025

https://slbcne.nic.in/nagaland/booklet/BACKGROUND%20PAPER_MARCH%202025_Full.pdf

From Table 2.3, it can be observed that the major composition of banks falls under the commercial banks category. There are very few welfare-oriented banks, such as the regional rural banks and small finance banks, in operation. Given the predominantly rural composition of the state's geographical structure, there is a higher need to set up more of such banks, which can cater to the rural population and enhance financial inclusion efforts in the state. Owing to the low presence of the different bank categories other than commercial banks, it is possible that the majority of the people in Nagaland, especially those who fall under the disadvantaged sections of the society, still remain unaware about the existence or benefits offered by such banks. The Average Population Per Bank Office (APPBO) stood at 10,752 as per the NABARD State Focus Report 2022-2023 for Nagaland.

2.2.3 Types of e-banking services in Nagaland

The e-banking sector in Nagaland has made significant progress in recent years. It has taken major steps to meet the needs of the digital age. As connectivity

infrastructure improves gradually, this has enabled the e-banking sector to grow and launch many new services. The various types of e-banking services in the state include:

1. Automated Teller Machine (ATM)
2. Micro ATM facilities
3. Point of Sale (POS) services
4. QR code-enabled banking services
5. Internet Banking Facilities
6. National Electronic Fund Transfer (NEFT)
7. Real Time Gross Settlement (RTGS)
8. Immediate Payment Interface System (IMPS)
9. Electronic Clearing System (ECS)
10. Unstructured Supplementary Services Data (USSD)
11. Aadhaar Enabled Payments Services (AePS)
12. Mobile Banking services
13. BHIM Unified Payments Interface (UPI)
14. Mobile wallets/ E-wallets
15. Debit card
16. Credit card

2.3 Development Efforts of the Banking Sector in Nagaland

Although the banking sector in Nagaland has witnessed substantial growth over the last few decades, the banking activities in the state remain largely rudimentary in nature. Most bank customers rely primarily on basic banking functions such as deposits, withdrawal services or access to credit facilities.

In recent years, the state has seen a tremendous growth in the commercial banking sector, which has established a well-reputed and commanding presence in the state. However, as discussed, most of the commercial bank branches continue to cluster within the few semi-urban and urban areas of the state, such as in the districts of Kohima and Dimapur. The uneven nature of the bank branch distribution in Nagaland

thwarts the growth of the banking sector, particularly in those districts with fewer bank branches and the whole of Nagaland in general.

In light of the present situation, the different stakeholders and authorities of the banking sector continue to pursue various means and measures to promote the development of the banking network across the entire land area of Nagaland. Some recent developments can be seen in the status of banking in the different Rural Development Blocks (RDBs), as well as the setting up of the first RBI sub-office in Nagaland.

2.3.1 Status of banking in Rural Development Blocks (RDB) in Nagaland

An RDB is considered a subdivision of a district in India, and is created to implement rural development efforts and improve the socio-economic status of the rural inhabitants. In Nagaland, out of the total 74 RDBs, 22 RDBs remain unbanked as on 20th June 2024, as per the meeting minutes of SLBC (07/08/24).

Table 2.4: Unbanked Blocks in Nagaland

Sl. No.	Unbanked Block	District	Allottee Bank
1	Kuhuboto	Dimapur	Federal Bank
2	Dhansiripar	Dimapur	Indian Bank
3	Aghunaqa	Dimapur	Punjab National Bank
4	Khonsa	Kiphire	Canara Bank
5	Longmatra	Kiphire	Bank of India
6	Seyochung	Kiphire	State Bank of India
7	Chunlikha	Kohima	Axis Bank
8	Longchem	Mokokchung	Bank of Baroda
9	Phomching	Mon	Bank of Baroda
10	Wakching	Mon	Punjab and Sind Bank
11	Chen	Mon	IDBI Bank
12	Angjangyang	Mon	Union Bank of India
13	Weziho	Phek	Bank of Maharashtra
14	Kikruma	Phek	State Bank of India
15	Chetheba	Phek	State Bank of India
16	Thonokyu	Tuensang	HDFC Bank
17	Panso	Tuensang	Central Bank of India

18	Chukitong	Wokha	Bank of Baroda
19	West Ralan	Wokha	Axis Bank
20	Changpang	Wokha	State Bank of India
21	Suruhoto	Zunheboto	Punjab National Bank
22	Satoi	Zunheboto	Indian Bank

Source: SLBC Unbanked Block Nagaland Report

<https://slbcne.nic.in/nagaland/banking/UNBANKED%20BLOCK%20NAGALAND.pdf>

https://slbcne.nic.in/nagaland/minutes/Nagaland_Minute_March%202024.pdf

The banking sector continues to monitor and increase all possible efforts to expand its reach within these RDBs in a systematic and steadily paced manner, with routine supervision and decisions taken by the State Level Bankers' Committee (SLBC) in this regard. The establishment of bank branches in the different RDBs follows a strict protocol, wherein RDBs are first identified, and then the allottee banks are assigned after evaluation of the feasibility of banking in the area. All these are done through the SLBC in consultation with the Reserve Bank of India. The progress of banking in these blocks is closely monitored thereafter.

2.3.2 Opening of RBI sub-office

The Reserve Bank of India (RBI) opened a sub-office in Kohima, Nagaland, on 13th June 2023, with three functional departments. This development marked a much-anticipated and significant step by the central bank to strengthen its reach and presence in the North-Eastern region of the country in general, and Nagaland in particular. The departments established at the sub-office include the Financial Inclusion and Development Department (FIDD), the Consumer Education and Protection Cell (CEPC), the Market Intelligence Cell and the Human Resource Management Department (HRMD).

The sub-office primarily focuses on implementing the central government's financial inclusion initiatives and on enhancing financial literacy and capacity among the residents of the state. Given that Nagaland consists largely of rural areas, sustained efforts are required to familiarise the population with the basic financial skills and to

improve awareness of the various dimensions of the financial system, which remains a relatively new concept for many. A summary of the progress of financial literacy activities in the state is presented in Table 2.5 below.

Table 2.5: Progress of Financial Literacy Activities Conducted in Nagaland (FY 2024-25)

Financial Literacy Activities Conducted During the Quarter Ended December 2024							No. of Participants	
Sl/no	State	No. of FLCs *	No of Rural branches	Actual Special Camps conducted	Actual Target Specific Camps conducted	Actual Rural camps conducted	Special Camps	TSC
1	Nagaland	16	85	35	199	199	1553	5583

Source: SLBC Financial Literacy (FLC) Report_December 2024

<https://slbcne.nic.in/nagaland/flc/FLC%20Report%20December%202024.xlsx>

2.4 Trends in E- Banking Services

The rapid digitalization of banking services is steadily but significantly transforming the banking sector in Nagaland. Although many areas of the state continue to have a relatively low number of bank branches, expanding digital coverage remains a priority, driven by the central government's ambitious financial inclusion and economic digitalization policy. The developments in the state's banking sector reflect a strong commitment to implementing the government's vision of a 'less-cash' economy across the country.

2.4.1 Transformation of the banking sector in Nagaland

The banking infrastructure of Nagaland, which was once considered backward and underdeveloped, now boasts an impressive bank strength of 26 different banks with 132 public bank branches, 74 private bank branches and 43 bank branches falling

under the other bank types. The state has also seen a significant shift in e-banking services usage in the last few years. The growth in the e-banking sector is evidenced by the gradual increase in e-banking users among bank customers in Nagaland, a trend that indicates a growing affinity for e-banking services over traditional services in Nagaland. The banking customer seeks additional benefits of quality, convenience and reliability features which can be found in the use of e-banking services.

In Table 2.6, which is given below, the data highlights the ATM distribution network in the state of Nagaland. The network boasts a total of 381 ATMs located at various strategic places in the different districts. ATMs being one of the major e-banking service categories, the nature and status of the ATM network offer a good reflection of the reach of Nagaland's e-banking sector in general.

Table 2.6: District-Wise ATM Distribution Report of Nagaland

Sl/No.	District Name	ATM			
		Rural	Semi-Urban	Urban	Total
1	CHUMOUKEDIMA	8	12	0	20
2	DIMAPUR	5	11	137	153
3	KIPHIRE	1	4	0	5
4	KOHIMA	6	93	0	99
5	LONGLENG	4	1	0	5
6	MOKOKCHUNG	9	27	0	36
7	MON	4	8	0	12
8	NIULAND	2	0	0	2
9	NOKLAK	1	1	0	2
10	PEREN	5	1	0	6
11	PHEK	5	4	0	9
12	SHAMATOR	1	0	0	1
13	TSEMINYU	2	1	0	3
14	TUENSANG	1	6	0	7
15	WOKHA	2	8	0	10
16	ZUNHEBOTO	3	8	0	11
Grand Total		59	185	137	381

Source: SLBC District Wise ATM Distribution Report_FY24-25

https://r.search.yahoo.com/_ylt=AwrKFbNsXKHoKAIA94C7HAX.;_ylu=Y29sbwNzZzMEcG9zAzEEdnRpZAMEc2VjA3Ny/RV=2/RE=1757073772/RO=10/RU=https%3a%2f%2fslbcne.nic.in%2fnagaland%2fbanking%2fDistrict%2520wise%2520Branch_ATM_BC%2520spread%2520nagaland.xlsx/RK=2/RS=FJe74VjQXf3v8Rnb6x_KHRufhPc-

2.4.2 Adoption of e-banking services in Nagaland

The e-banking adoption in Nagaland has been improving steadily and has grown significantly, although at a much slower pace than other metropolitan regions in the country. Urban districts like Dimapur and Kohima show higher adoption rates as opposed to other remotely located districts, due to better logistical advantages like internet infrastructure, digital literacy and smartphone penetration.

The primary data collected indicate a strong positive trajectory for the growth and adoption of e-banking in Nagaland in the near future. Some of the related findings from the data analysis, supporting this statement, are given below.

2.4.3 Overview of respondents' demographic profile

Demographic factors, including gender, age, educational qualification, occupation, marital status and monthly income, were considered in the collection of primary data to construct the respondents' demographic profile. The variation in respondents' composition across each demographic factor are presented in Table 2.7 below.

Table 2.7: Respondents' Demographic Profile

Parameter	Groups	Respondents		E-Banking Users		Non-Users	
		No.	%	No.	%	No.	%
Gender	Male	191	47.8	167	48.4	2	58.2
	Female	209	52.2	178	51.6	3	41.8
	Others			-	-	-	-
Age	<20 years	14	3.6	12	3.4	3	4.3
	20-30 years	167	41.7	167	48.4	5	8.6
	31-40 years	133	33.3	122	35.4	3	24.3
	41-50 years	57	14.3	41	11.9	13	24.3
	>50 years	29	7.2	3	0.9	21	38.6
	HSLC	51	12.8	22	6.4	23	41.2

Educational Qualification	HSSLC	52	13.0	39	11.3	12	22.1
	Under Graduate	128	32.0	121	35.1	10	19.1
	Post graduate	128	32.0	126	36.5	6	10.3
	Others	41	10.2	37	10.7	4	7.4
Occupation	Student	67	16.8	64	18.6	5	8.7
	Unemployed	30	7.5	22	6.4	6	11.6
	Self Employed	64	16.1	47	13.6	16	28.9
	Government Employee	112	27.9	107	31	6	11.6
	Employed in Private Sector	98	24.5	91	26.4	9	16.0
	Others	29	7.2	14	4.1	13	23.2
Marital Status	Married	196	49	146	42.3	44	79.1
	Un-Married	204	51	195	57.7	11	20.9
Monthly Income	<20,000	179	44.6	150	43.5	28	51.4
	20000-40,000	116	28.9	102	29.6	14	24.3
	40,001-60,000	50	12.5	42	12.2	8	14.3
	60,001-80,000	17	4.3	15	4.3	2	4.3
	>80,000	38	9.6	36	10.4	3	5.7

Source: Primary Data

There is an almost equal distribution of respondents between the two genders, with female respondents comprising 47.8% and male respondents 52.2%. Within the age demographic, five distinct groups were identified. The majority of respondents belonged to the 20-30 years category (41.7%), followed by those in the 31-40 years category (33.3%). The remaining three categories, i.e., respondents below 20 years, and those above 41 years together, accounted for only about 25% of the total.

A significant proportion of respondents possessed higher educational qualifications, with undergraduate and postgraduate degree holders each representing 32% of the sample. Respondents with HSSLC and HSLC qualifications accounted for 13% and 12.8%, respectively, while the remaining 10.2% fell under other categories of educational attainments.

The primary data further revealed that 75.7% of respondents were employed in different categories: government employees (27.9%), employed in the private sector

(24.5%), self-employed (16.1%), and those engaged in other forms of employment, such as the informal sector and daily wage labour (7.2%). Students accounted for 16.8% while only 7.5% were unemployed.

Marital status also showed a near even distribution, with 49% of respondents being married and 51% unmarried.

In terms of income, the largest group of respondents earned less than Rs. 20,000 Rs.20,000 per month (44.6%), followed by those earning between Rs.20,000-Rs.40,000 (28.9%). Higher income groups were relatively smaller, with 12.5% earning Rs. 40,001- Rs. 60,000, 4.3% earning Rs. 60,001- Rs.80,000 and 9.6% earning above Rs. 80,000.

Table 2.7 also presents the demographic composition of e-banking users and non-users. Who constituted 86.25% and 13.75% of the total respondents, respectively. The demographic profile of e-banking users closely reflects the overall sample composition across most factors. However, the non-users' demographic profile reveals a contrasting pattern.

Among e-banking users, the proportion of female respondents (51.6%) slightly exceeded that of males (48.4%). In contrast, male non-users (58.2%) outnumbered female non-users (41.8%). In the same way, age-wise, the majority of e-banking users (83.8%) were concentrated in the 20-40 years group, whereas a large proportion of non-users (38.6%) were above 50 years. This indicates that e-banking users are predominantly younger, while non-users are largely older individuals.

Educational qualification further highlights this divide: while most e-banking users (71.6%) possessed higher levels of education, the majority of non-users (63.3%) had only up to HSSLC level qualification.

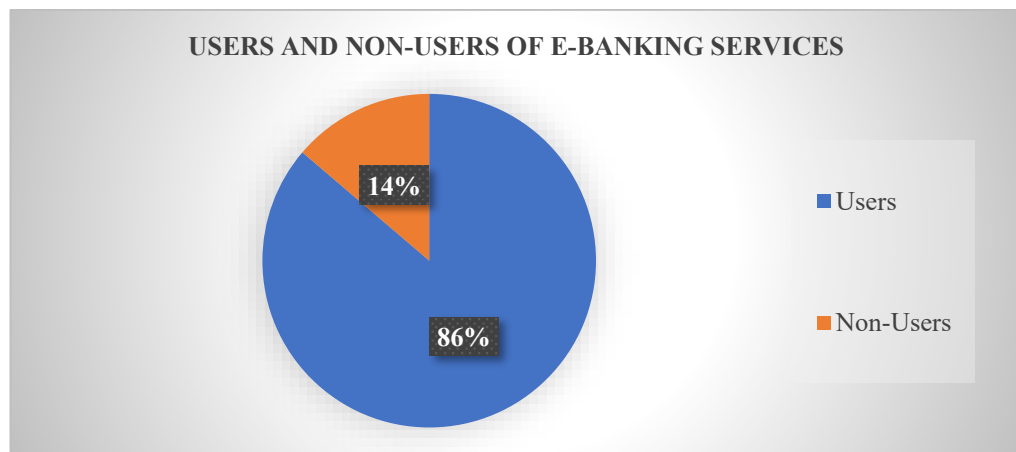
With regard to occupation, both users and non-users were primarily employed, though the proportion of unemployed was higher among the non-users (11.6%), compared to users (6.4%). Government employees constituted the largest share of e-banking users (31%), while self-employment was most common among the non-users (28.2%).

In terms of marital status, a higher percentage of e-banking users were unmarried (57.7%), whereas married individuals dominated the non-user category (79.1%).

Finally, income patterns were broadly similar for both groups. A majority of e-banking users (73.1%) and non-users (75.7%) earned up to Rs. 40,00 per month.

Thus, understanding these demographic characteristics is essential in analysing awareness, perception, preferences and satisfaction with e-banking services, as discussed in the subsequent chapters.

Chart 2.1: Percentage Of E-Banking Users and Non-Users Among Respondents



Source: Primary Data

The primary data collected for the present study reveal widespread e-banking services. The majority of the respondents, up to 86%, have indicated that they make use of at least one e-banking service to carry out their personal banking transactions and/or activities. The vast gap between users and non-users of e-banking thus reveals the growing popularity of the services in the state of Nagaland. The data also points towards the possibilities of further growth and expansion of the e-banking sector in our state in the near future.

2.4.4 The shift towards digital banking

The banking landscape in Nagaland has undergone three major phases of transformation, beginning with the pre-electronic era, moving into the e-banking stage, and now advancing towards a fully digitalized banking system. Today, e-banking is transitioning from an electronically driven service model to a comprehensive, digitally enabled ecosystem that expands both the reach and scope of banking services. This shift is closely aligned with the objectives of India's National Digital Economy. The vital role of the banking sector in driving this transformation is clearly evident.

Banks in Nagaland serve as the first point of financial access for many, particularly in rural areas. Their presence not only promotes financial inclusion but also fosters financial literacy across rural, semi-urban and urban regions of the state. For many individuals, banks are more than intermediaries of financial services; they represent the only gateway to the broader financial system and provide access to a wide spectrum of saving and investment opportunities, the full significance of which is yet to be fully realised in the state.

The growing prominence of digital banking in Nagaland is reflected in the scale and nature of digital transactions, as illustrated in Table 2.8. The data highlight exceptionally high transaction volume across different e-banking services, with IMPS and UPI standing out for their significantly higher transaction values compared to other channels. This underscores the fact that digital banking facilities and platforms are now leading the way in shaping the future of the banking sector in Nagaland.

Table 2.8: Bank-Wise Progress Under Digital Transaction Report of Nagaland for FY 2024-25 (Amount in Lakhs)

Sl/No.	Bank Name	IMPS A/C	IMPS Amt.	(Debit & Credit) A/C	(Debit & Credit) Amt.	USSD A/C	USSD Amt.	BHIM/UPI A/c	BHIM/UPI Amt.	BHIM Aadhaar A/C	BHIM Aadhaar Amt.
1	BOB	90964	17169.71	426492	17638.42	20	0.26	8420699	139625.06	0	0.00
2	BOI	0	0.00	875	0.00	0	0.00	799	0.00	0	0.00
3	BOM	250	110.00	1060	250.00	0	0.00	540	51.40	1052	20.00
4	CAN	0	0.00	88556	4791.40	17	0.09	3077449	51967.02	0	0.00
5	CBI	5952	2845.07	9433	2487.96	0	0.00	18260	26639.02	3	0.02
6	IND	15823	2025.78	47647	2320.14	0	0.00	386518	4264.83	0	0.00
7	IOB	450	875.00	510	480.00	0	0.00	222	410.00	80	120.40
8	PNB	17394	2202.92	55830	2851.88	0	0.00	874770	16140.17	0	0.00
9	PSB	96	22.54	0	0.00	0	0.00	139	45.69	139	45.69
10	SBI	2775	53.00	4064	62.85	724733	22139.67	156916401	2403941.02	167	5.98
11	UCO	108344	13079.95	87000	4830.24	0	0.00	2885314	44635.88	0	0.00
12	UNI	13636	1313.65	1215	1.34	0	0.00	675976	10671.56	159	2.92
Public	Total	255684	39697.62	722593	35714.23	724770	22140.02	173257087	2699391.65	1600	195.01
1	AXIS	13909	8113400.70	14009	9948.09	0	0.00	40060	607652.02	0	0.00
2	BAND	24155	6496.72	7674	301.02	0	0.00	4146816	83315.69	0	0.00
3	FED	49378	8407.22	37881	1451.22	0	0.00	61247	1601.86	0	0.00
4	HDFC	373530	82953.79	283388	13149.25	0	0.00	9225403	313955.85	0	0.00
5	ICICI	4760	22859.16	1397	1383.14	0	0.00	8640	41416.34	0	0.00
6	IDBI	4183	1852.20	323	3.29	0	0.00	0	0.00	88	3.32
7	IDFC	1225	537.10	37	3.70	0	0.00	0	0.00	0	0.00
8	INDUS	117549	16412.42	578	13.37	0	0.00	815423	38603.34	0	0.00
9	SIB	25707	5404.52	43699	2272.67	0	0.00	384533	11240.46	0	0.00
10	YES	91108	12967.80	40543	1240.45	0	0.00	838298	29939.46	10	0.19
Private	Total	705504	8271291.63	429529	29766.20	0	0.00	15520420	1127725.02	98	3.51
1	ESAF	42	5.66	209	10.20	0	0.00	15533	574.23	0	0.00

2	NESFB	1445	1736.84	2839	10.06	0	0.00	0	0.00	0	0.00
Small FB	Total	1487	1742.50	3048	20.26	0	0.00	15533	574.23	0	0.00
1	APBL	364	17.40	0	0.00	0	0.00	596	2746.18	596	2746.18
RRB	Total	0	0.00	24684	2882.57	0	0.00	0	0.00	0	0.00
1	NSCB	0	0.00	30921	1694.86	0	0.00	0	0.00	0	0.00
Grand	Total	962675	8312732	1179854	68383.26	724770	22140.02	188793040	3827691	1698	198.52

Source: SLBC Background Paper_March 2025

https://slbcne.nic.in/nagaland/booklet/BACKGROUND%20PAPER_MARCH%202025_Full.pdf

2.4.5 Digitalization efforts in Nagaland

The nationwide shift toward technology-driven digital evolution in the banking sector has brought about remarkable changes in Nagaland's banking. The introduction of e-banking services paved the way for the digitalization of the entire banking system, complementing the central government's efforts to build a digital economy through the Digital India program. The attainment of India's digital economy goals, thus, relies heavily on the strength and efficiency of the e-banking sector, making it essential that no stone is left unturned at this critical stage. To meet the national target, the pace of digital service development across all states needs to remain relatively even. Accordingly, several centrally driven initiatives on financial inclusion, digitalization and financial literacy are being actively implemented.

Underlying these efforts is a deliberate and systematic push to establish a robust 'Digital Payment Ecosystem' in line with the Reserve Bank of India's objective of achieving 100% digitalization across all districts by March 2025. At present, full digitalization of bank accounts has been achieved in Kohima. The table below presents the levels of digitalization across the different districts of Nagaland.

Table 2.9: Status of Expansion and Deepening of Digital Payments Ecosystem in Nagaland

SL/NO	DISTRICT	SB (%)	CA (%)
1	CHUMUKEDIMA	93.73	93.49
2	DIMAPUR	91.42	83.51
3	KIPHIRE	88.87	97.40
4	KOHIMA	100	100
5	LONGLENG	99.65	75.50
6	MELURI	99.75	99.39
7	MOKOKCHUNG	86.13	80.74
8	MON	92.66	84.49
9	NIULAND	99.77	95.00
10	NOKLAK	98.61	78.03
11	PEREN	89.73	89.50
12	PHEK	82.69	96.39
13	SHAMATOR	98.03	92.12

14	TUENSANG	84.50	93.93
15	TSEMINYU	81.65	95.47
16	WOKHA	90.42	76.27
17	ZUNHEBOTO	82.69	90.14

Source: SLBC Meeting Minutes_March 2025

https://slbcne.nic.in/nagaland/agenda/Agenda%20of%20SLBC%20Meeting%20March%202025_Work_New.pdf

2.4.6 Financial inclusion efforts by the banking sector in Nagaland

India has a rural population of about 780 million with limited or no access to financial services. In Nagaland, as per the 2011 Census Report, about 71% of the total population resides in rural regions. Previous data from the present chapter had indicated an acute shortage in bank branch distribution as well as other banking facilities across the rural regions, thereby indicating that the majority of the total population in the state, therefore, has little or no access to banking institutions. This situation creates limitations to a great extent and impacts their capacity to participate or even engage in basic banking facilities. As such, there is an urgent need to reach these areas through innovative measures to achieve the financial inclusion goals. In this regard, the banking sector, particularly its e-banking sector, serves as the best means through which these inclusivity targets can be achieved. The Government and Central Bank have rolled out several national schemes to implement their financial inclusion policy. Some of the major schemes making a significant impact in Nagaland are as follows:

1. Pradhan Mantri Jan Dhan Yojana (PMJDY)

The PMJDY Scheme was initiated by the Government in 2015 with the primary objective of enhancing the financial inclusivity mission while simultaneously reducing the regional financial inequalities within the country's extensive geographical network. The scheme also seeks to ensure affordable and easy access to the various banking and financial services for all Indians. It is also concerned with expanding the scope of the technology incorporation process across the different financial and economic sectors, to accelerate financial inclusion and widen the reach of these sectors across all regions, whether urban or rural in nature.

As indicated before in Tables 2.2 and 2.3, the banking sector in Nagaland continues to face obstacles and challenges in setting up vital bank branches, especially in the rural areas, like villages, thereby making the process of expanding the banking reach throughout the state a daring task. This situation also fails to address the basic financial needs of the rural inhabitants in these regions, as it becomes increasingly difficult to even open a simple savings account or avail essential credit facilities. The process of building a brick-and-mortar bank branch is very resource-intensive as well as time-consuming, and is constantly marred with the possibility of failure. Moreover, the introduction of single bank branches to serve a large population may cause additional hardships on the people, as it may lead to high traffic during banking hours, and wastage of time and effort on both ends. As such, the rural landscape demands that banks should actively provide technology-driven products such as ATMs and internet kiosks for successfully implementing financial inclusion.

Under the PMJDY Scheme of the central government, an initiative to implement camp-based account opening facilities was started. This helps to deepen banking reach even in the rural areas, thereby proving to be extremely beneficial for the people living in these rural villages. Another key initiative to tackle the problem of inadequate bank branches came in the form of utilising online account opening facilities to further supplement the camp-based banking reach expansion method. These steps taken by the government have contributed greatly towards financial inclusion efforts.

Table 2.10: Progress Report of PMJDY Scheme in Nagaland

Period	Beneficiaries at rural/semi urban centre bank branches	Beneficiaries at urban/metro centre bank branches	Total beneficiaries	Balance in beneficiary accounts (in crores)	No. of RuPay cards issued to beneficiaries
2024-25	1,91,810	2,15,353	4,07,163	132.18	3,03,198
2023-24	1,61,168	2,02,775	3,63,943	112.77	2,97,024

Source: PMJDY State-Wise Report <https://www.pmjdy.gov.in/statewise-statistics>

In the above table, the data clearly indicates a steady growth in the number of beneficiaries under the PMJDY Scheme in the state of Nagaland. There is a higher growth rate in the rural/semi-urban regions (19% increase from 2023-24 to 2024-25), whereas the growth rate in the urban areas only stands at 6.2% during the same time period. This further solidifies the significance of the scheme in pushing the financial inclusion agenda, especially for the rural regions.

At the national level, the PMJDY scheme has registered over 54.97 crore beneficiaries as of 2024-25. The scheme provides a variety of benefits for the stakeholders, which include access to services such as opening of basic deposit accounts for every unbanked person, removal of bank balance requirements in PMJDY accounts, attractive overdraft facilities, offering of digital banking services, and Direct Benefit Transfer (DBT) facilities, among others.

2. Bank Mitra Program

Bank Mitras refer to the Business Correspondents (BC) who provide valuable services to the banking sector through their role as facilitators of an extensive range of banking services, especially for the deprived and unbanked regions in the country. They therefore contribute significantly towards the growth of financial inclusion, as they facilitate branchless banking in these regions. The bank Mitra program is also dedicated to bringing about a positive outcome in the financial literacy efforts, and as such, undertakes different activities to educate, spread awareness and offer important advice to the customers, thus, improving their stance and keeping them informed about their rights, interests and opportunities to allow for informed decision making. According to the PMJDY data, there are 13.77 lakh Bank Mitras across the country as of 2024-25.

Table 2.11, given below, shows the distribution of BCs and Customer Service Points (CSPs) across the districts of Nagaland.

Table 2.11: District-Wise BC/CSP Report of Nagaland for FY 2024-25

Sl No.	District Name	B/C		
		Fix	Other	Total
1	CHUMOUKEDIMA	90	11	101
2	DIMAPUR	104	138	242
3	KIPHIRE	31	0	31
4	KOHIMA	65	134	199
5	LONGLENG	11	3	14
6	MOKOKCHUNG	16	23	39
7	MON	149	47	196
8	NIULAND	6	7	13
9	NOKLAK	21	0	21
10	PEREN	28	2	30
11	PHEK	22	0	22
12	SHAMATOR	10	0	10
13	TSEMINYU	3	0	3
14	TUENSANG	8	0	8
15	WOKHA	38	7	45
16	ZUNHEBOTO	20	1	21
Grand Total		622	373	995

Source: SLBC Meeting Minutes_March 2025

https://slbcne.nic.in/nagaland/agenda/Agenda%20of%20SLBC%20Meeting%20March%202025_Work_New.pdf

The data presented in Table 2.11 indicates that a total of 995 BCs operate within the state. Dimapur district has the highest number of BCs in Nagaland (242), followed by Kohima (199) and Mon (196). Twelve districts have fewer than 50 BCs. Tseminyu district recorded the lowest number of BCs, registering only a total of 3 BCs operating within its territory.

3. Pradhan Mantri Mudra Yojna (PMMY)

The banking sector in Nagaland is also implementing the PMMY Scheme, which essentially facilitates the provision of micro and small loans ranging from Rs.50,000 to Rs. 10 lakhs, under the three sub-schemes: Shisha, Kishore and Tarun schemes respectively. The scheme helps in reaching many unbanked and underserved

regions, where beneficiaries are allowed to avail basic credit facilities with very little hassle. The major beneficiaries include entrepreneurs, small businesses and the younger generation to serve as a mode of encouragement for stepping up to begin their own activities for self-employment generation. In this way, the scheme ensures and cements its role as a crucial agent for implementing the nationwide financial inclusion program.

As per the Mudra Loans Report, during FY 2024-25, the amount of Mudra loans sanctioned nationwide stood at Rs.4,30,110.17 crores, while the amount disbursed stood at Rs.4,18,399.18 crores.

4. Sukanya Samriddhi Yojna (SSY)

This scheme comes under the flagship program of ‘Beti Bachao, Beti Padhao’, wherein the main objective is to extend reach efforts, focusing on the girl child in India. It is a savings scheme or small deposits scheme to expand financial coverage for girl child under the age of ten. In Nagaland, the statistics for the scheme for FY 2024-25 is given below in Table 2.12.

Table 2.12: Progress Under SSY Scheme in Nagaland as on 31-07-2025

Department of Posts (DOP)		Banks		Total	
Registered subscribers	Amount saved (cr)	Registered subscribers	Amount saved (cr)	Registered subscribers	Amount saved (cr)
18909	57.90	5542	49.62	24451	107.52

Source: Statement Showing State-Wise No. of Accounts and Collection in Post Offices and Banks Under Sukhanya Samriddhi Yojana

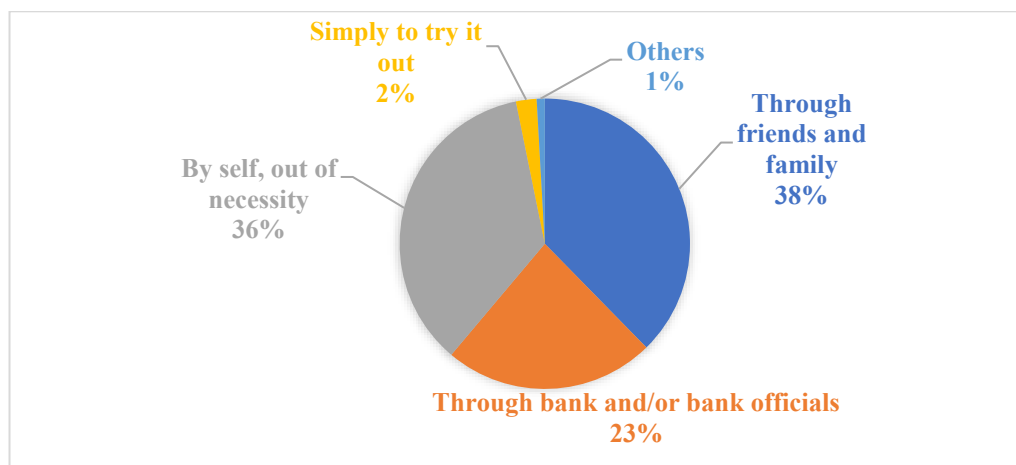
[https://www.nsiindia.gov.in/\(S\(fkh41155m2ptdi45axnu2mfs\)\)/writereaddata/FileUploads/July%2025%20SSA%20statewise.pdf](https://www.nsiindia.gov.in/(S(fkh41155m2ptdi45axnu2mfs))/writereaddata/FileUploads/July%2025%20SSA%20statewise.pdf)

2.5 Brief Overview of E-Banking Services Through the Customers’ Lenses

In the present study, primary data were collected with the intention of bringing to light the nature and pattern of e-banking usage among the bank customers in Nagaland. For this purpose, several information relating to how the respondents were introduced to e-banking services, the different types of e-banking services they use,

how long they have been using e-banking services and how frequently they tend to use these services were collected through the questionnaire survey. The findings from the data thus collected are presented in the charts and tables given below.

Chart 2.2: Mode Of Entry/Introduction To E-Banking Services Among Respondents



Source: Primary Data

Analysing the mode of entry/introduction to e-banking services give useful insight into understanding the major factors that have an impact on the bank customer's e-banking services adoption behaviour. Such information can help banks to design proper strategies to further enhance e-banking adoption and usage rates.

Chart 2.2 shows us that the most common and effective mode of introduction is through the informal channel, i.e., through word-of-mouth. The data suggests that recommendations and suggestions received from trusted friends and family members who have had prior experience of using e-banking services play a significant role in securing new e-banking users. 38% of the respondents started using e-banking services through this route.

In certain cases, customers may initiate the use of e-banking services on their own. Such actions may be driven by observing how others have benefited through the use of e-banking services or simply out of necessity, to complete certain tasks. This mode of entry was used by 36% of the respondents.

Another 23% of the respondents indicated that they started using e-banking services on the advice or recommendation of the banks and bank officials. This data suggests that by building good customer relationships and increasing efforts to promote e-banking services, a significant number of new e-banking users can be added to the existing customer base.

Table 2.13: Types Of E-Banking Services in Use by the Respondents

Combination of E-Banking Services Category in Use by Respondents	Percentage Of Respondents (%)
ATM	0.6
Dr/Cr cards	0.3
Mobile banking	0.6
ATM + internet banking	0.3
ATM + dr/cr cards	1.7
ATM + mobile banking	12.4
ATM + internet banking + dr/cr cards	0.3
ATM + internet banking + mobile banking	2.6
ATM + dr/cr cards + mobile banking	53.5
Internet banking + dr/cr cards + mobile banking	0.6
ATM + internet banking + dr/cr cards + mobile banking	27.2
TOTAL	100

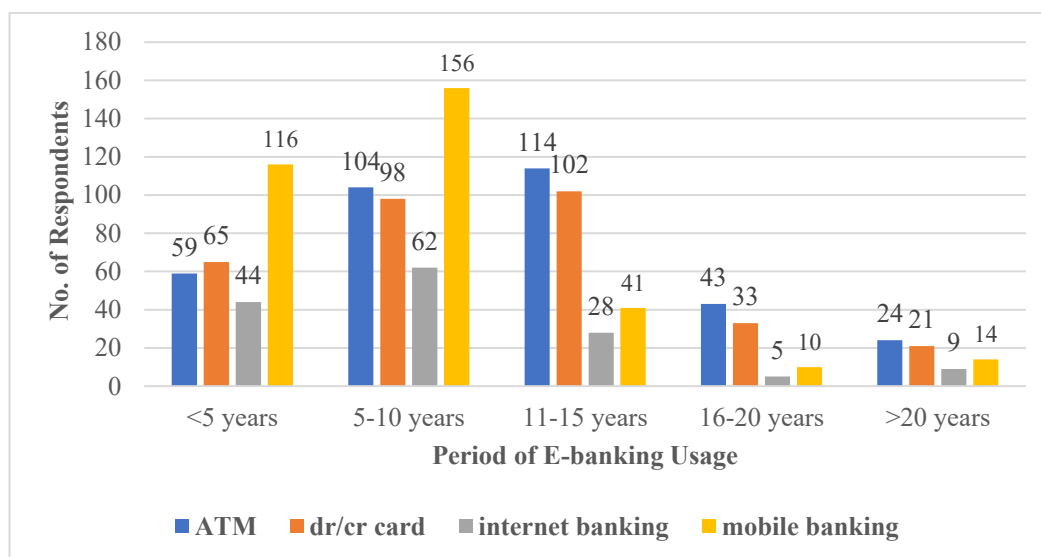
Source: Primary Data

When considering the usage trends across the four major e-banking service categories, the results present an interesting insight into the customer's preferences. The combination of 'ATM + debit/credit cards+ mobile banking' constitute the highest percentage of users at 53.5%, while about 27.2% use the complete combination, i.e., 'ATM + debit/credit cards+ mobile banking + internet banking'. There is a high usage percentage for 'ATM+ mobile banking' combination, which registered 12.4% usage rate.

Users who use only one type of e-banking service account for only 1.5 %. The data tells us that bank customers prefer to use a combination of different e-banking services for their activities. The table also indicates that ATM usage continues to be

the most dominant, as it constitutes a staggering 98.6% usage rate among the respondents. Mobile banking services follow close behind with 96.9% usage rate.

Chart 2.3: Time Span of Respondents' E-Banking Usage



Source: Primary Data

Chart 2.3 illustrates the different timeframes of e-banking services usage. The adoption and utilisation of e-banking services have shown a significant increase over the past 11-15 years. In contrast, only a small proportion of users have been availing these services for more than 15 years.

It is observed that internet banking has not experienced desirable growth and continues to remain the most underutilised category of e-banking services. ATM usage, which witnessed a sharp increase in the previous decade, has shown a gradual decline in popularity over the past five years. In contrast, mobile banking has registered significant growth during the last decade, showing a remarkable improvement compared to earlier periods.

Findings also indicate that e-banking services have been operational in Nagaland for over two decades; however, the usage rate has gained momentum only in recent years. This trend may be attributed to the central government's intensified efforts to promote financial inclusion and the adoption of digital technology.

Table 2.14: Distribution of Respondents by Frequency of E-Banking Usage

PARTICULARS	Daily (%)	Weekly (%)	Monthly (%)	Others (%)
Total Respondents	15.2	39.7	43.1	2
GENDER				
Male	20	35	41.2	3.8
Female	17	74	6.6	2.4
AGE				
<20 years	8.3	8.3	66.6	16.8
21-30 years	19.2	44	36.1	0.7
31-40 years	11.4	39.3	46	3.2
41-50 years	12.5	35	52.5	-
>50 years	-	-	100	-
EDUCATIONAL QUALIFICATION				
HSLC	13.6	9.1	68.2	9.1
HSSLC	10.6	36.8	52.6	-
Under Graduate	16.1	34.7	47.4	1.8
Post Graduate	17.6	48	33.6	0.8
Others	10.5	47.4	36.8	5.3
OCCUPATION				
Student	11	38	44	7
Unemployed	27.2	22.7	50.1	-
Self Employed	21.3	44.7	34	
Government Service	20	38	39.2	2.8
Employed in Private Sector	8.7	44	45	2.3
Others	-	40	60	-
MARITAL STATUS				
Married	14.5	33.8	49	2.7
Unmarried	16	44.3	38	1.7
MONTHLY INCOME				
<Rs.20,000	14.1	39.2	45.2	1.5
Rs.20,000-40,000	11.8	40.2	45.1	2.9
Rs.40,001-Rs.60,000	9.7	39	46.3	5
Rs. 60,001-Rs. 80,000	42.8	28.6	28.6	-
>Rs.80,0000	25	47.2	27.8	-

Source: Primary Data

Table 2.14 presents the distribution of e-banking usage across various demographic factors. Overall, the majority of respondents reported using e-banking

services on a monthly basis (43.1%) and weekly basis (39.7%), while only 15.2% use them daily, and a negligible share falls in the ‘others’ category.

Among male respondents, the majority (41.2%) use e-banking services on a monthly basis, while a significant share of female respondents (74%) are weekly users. This indicates that female respondents, on average, access e-banking more frequently than their male counterparts.

Age-wise distribution reveals that respondents below 20 years (66.6%), those between 31-40 years (46%), and those between 41-50 years (52.5%) predominantly use e-banking services on a monthly basis. In contrast, respondents in the 21-30 years category demonstrate more frequent usage, with 44% using the services on a weekly basis. All respondents above 50 years reported using e-banking on a monthly basis, suggesting limited frequency in older age groups.

Educational qualification appears to play an important role in usage frequency. Respondents with postgraduate qualifications show a relatively higher frequency, with 48% using e-banking services weekly and 17.6% daily. Conversely, respondents with lower qualifications, such as HSLC and HSSLC, exhibit lower frequency, with 68.2% and 52.6% respectively, using e-banking services on a monthly basis.

In terms of occupation, frequency is higher among the employed categories. Self-employed respondents recorded the highest frequency, with 21.3% daily users and 44.7% weekly users, reflecting the influence of entrepreneurial and business-related needs in driving digital transactions. Government and private sector employees also show significant usage, with a large share being monthly users (39.2% and 45% respectively), followed by weekly users (38% and 44%). Interestingly, although unemployed respondents reported 27.2% daily usage, the majority (50.1%) still fall under the monthly category.

Marital status also shows variation. Unmarried respondents tend to use e-banking services more frequently, with 44.3% reporting weekly usage, while married respondents rely more on monthly usage (49%).

Income levels further confirm the relationship between higher earnings and greater frequency of e-banking usage. A notable 42.8% of the users earning between Rs. 60,001- 80,000 are daily users, while 47.2% of those earning above Rs. 80,000 are weekly users. By contrast, respondents earning Rs. 60,000 or below per month largely fall into the monthly usage category.

In summary, frequent use of e-banking is more common among younger, highly educated, higher-income, self-employed or professional users, while older, less educated and lower-income groups mostly use it on a monthly basis.

Table 2.15: Approximate Monthly Expense Through E-Banking Channels

Nature of Expense Using E-Banking	Approximate Monthly Expenditure (Rs)				
	<10,000	10,000-50,000	50,001-1,00,000	>1,00,000	N/A
	Percentage of Respondents (%)				
Online Shopping	77.5	13.7	0.6	-	8.2
Offline Shopping	63.5	25.4	0.6	0.3	10.2
Cash withdrawals (ATM)	48.4	44.3	4.1	0.9	2.3
Utility Bills	62.4	15.8	-	0.3	21.5
Fund transfers	42.9	27.8	3.6	1.5	24.2
Interest/ Premium/ EMI	23.8	14.3	1.8	1.3	58.8

Source: Primary Data

In Table 2.15, the nature and amount of monthly expenses through e-banking channels are shown. It is understood that the average bank customer's monthly e-banking expenses are usually below Rs.10,000. Around 91.2% of the respondents spend up to Rs.50,000 through e-banking services to pay for monthly online shopping activities. The expenses under this category are not significantly high. Many also use e-banking facilities for their day-to-day offline shopping requirements, about 88.9% of the monthly expenses under this category do not exceed Rs.50,000 per month. Monthly ATM cash withdrawals are common for 97.7% of the respondents, of which around 44.3% withdraw up to Rs.50,000 on a monthly basis, and another 48.4% withdraw less than Rs.10,000 per month.

The data also showed that respondents do not use e-banking services for making large payments. The percentage of users spending more than Rs.1,00,000 per month through e-banking channels does not exceed 2% across all the different categories. Also, there is low utilisation of e-banking services for payments relating to interest, premium, Equated Monthly Instalments (EMI) and investments. However, this may simply be due to the respondents not being engaged in credit, insurance or investment activities.

Table 2.16: Status of E-Banking Services Among Non-Users

QUESTION	Percentage of Respondents (%)		
	YES	MAYBE	NO
1. Are you likely to start using e-banking services in the future?	20.6	55.9	23.5
2. Will you make enquiries about existing e-banking services?	23.5	54.4	22.1
3. Will you open new bank account in a bank that doesn't offer e-banking services?	11.8	27.9	60.3

Source: Primary Data

An analysis of the status of e-banking services among non-users from Table 2.16 reveals that only 20.6% are willing to start using e-banking services, while the majority, 55.9% remain hesitant or undecided, and 23.5% express outright rejection. Most non-users are undecided about making enquiries regarding existing e-banking services, reflecting a general lack of interest in learning about them. However, 60.3% revealed that they would not open new bank accounts in those banks that do not offer e-banking services, thereby indicating a desire to maintain a basic safety net for potential future use.

CHAPTER III

ANALYSIS OF CUSTOMERS' AWARENESS AND PERCEPTION OF E-BANKING SERVICES

3.1 Introduction

The present chapter focuses on two major aspects of the customers' perspective: awareness and perception. It aligns with the second objective of the study, which is to examine customers' awareness and perception of e-banking services. The chapter highlights the level and nature of awareness among bank customer and analyses whether the perception of e-banking services is positive or negative by measuring the gap between their expectations and actual experiences.

3.2 The Concept of Awareness

Awareness can be understood as a psychological state or ability to perceive, feel or be conscious of things happening around us. *It is also referred to as the possession of certain knowledge and understanding of our environment* (Gafoor, 2012)³⁸. To gain awareness of something does not simply refer to the process of being able to see and accept the existence of something or a situation, but rather it also extends further into the ability to gain a certain degree of understanding and be able to form a basis for establishing a perception about the same.

³⁸ Gafoor, K.A. (2012). *Considerations in the measurement of awareness*, National Level Seminar on Emerging Trends in Education, University of Calicut, Kerala.

The concept of awareness thus exists in a multi-dimensional context, and as such, awareness about certain topics, things and situations will have varying depth or range among different individuals. Awareness levels, therefore, need to be studied to better understand how well-informed or knowledgeable certain groups of people are with regard to particular concepts.

The banking sector offers a wide range of e-banking services. The present study aims to understand the levels of awareness of the bank customers in Nagaland, with regard to:

1. Awareness of the concept of e-banking in general.
2. Awareness of the major e-banking service categories.
3. Awareness of the key facilities and sub-categories of services found under each major e-banking category.

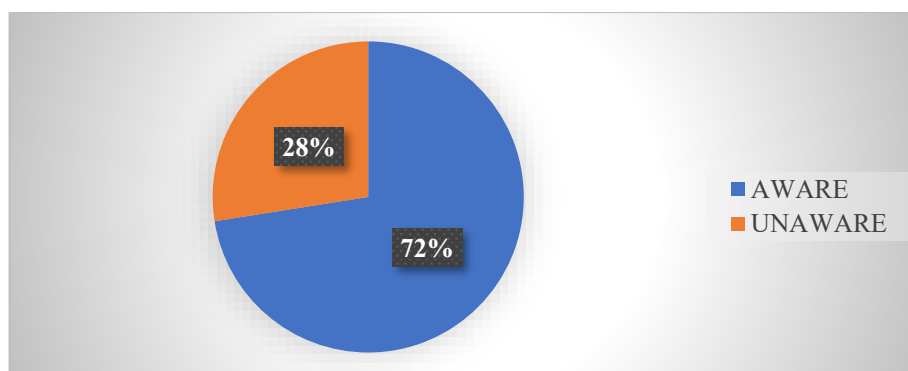
Primary data was collected and analysed to show the status of e-banking services awareness in Nagaland.

Further, in this chapter, Hypothesis I (H1), which was formulated based on the researcher's assumption that there is a high level of awareness of e-banking services among bank customers in Nagaland, will be tested. In this regard, the data analysis has been presented as follows.

3.3 Analysis of Awareness Levels of E-Banking Services

The primary data collected through the questionnaire survey for the present study has been compiled and analysed to present the following charts and tables in order to present the awareness levels of various e-banking services in Nagaland. Statistical tests were also employed to test the data regarding awareness levels for the e-banking services.

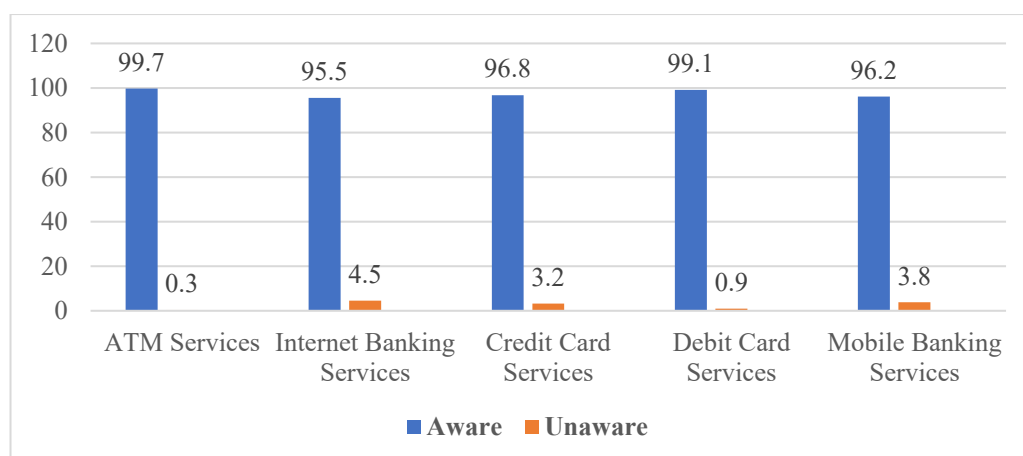
Chart 3.1: Awareness of E-Banking Services Among Non-Users



Source: Primary Data

In Chapter II of the present study, it was found that the percentage of e-banking users and non-users in Nagaland was approximately 86% and 14% respectively. This data indicated that the number of respondents falling under the ‘e-banking users’ category already had some established degree of awareness of the e-banking services. As such, the awareness levels of e-banking among the non-users have been analysed separately, to understand the percentage of bank customers who are aware of e-banking services but still choose not to use these same services. The data collected revealed the findings as projected in Chart 3.1, wherein it was found that at least 72% of non-users have some degree of awareness of the e-banking services being offered by the banks.

Chart 3.2: Awareness Levels of Major E-Banking Service Categories

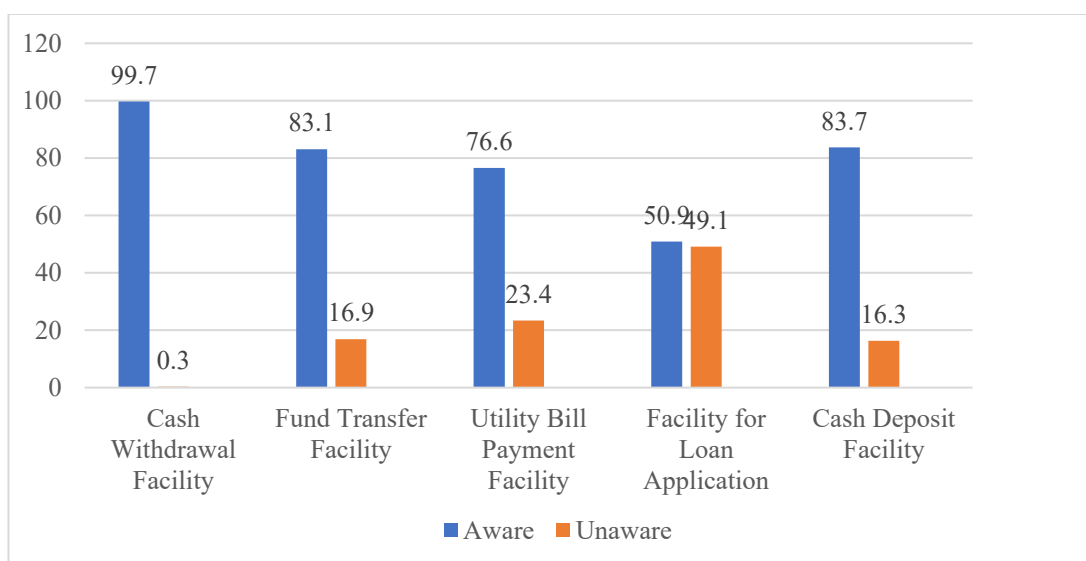


Source: Primary Data

Chart 3.2 represents the awareness levels of bank customers with regard to the four major e-banking service categories. It was found that the awareness across all categories is significantly high. Awareness level of ATM services is the highest (99.7%), followed closely by debit card services (99.1%). All categories of e-banking services registered more than 95% awareness levels among the bank customers. It was also found that awareness of internet banking services (95.5%) is the lowest among all the major e-banking services categories in Nagaland.

To obtain a clearer picture of awareness levels of e-banking services, the awareness levels for the respective key facilities under each major category were also analysed and presented in Charts 3.3-3.6.

Chart 3.3: Awareness Levels of Key Facilities Under ATM Services

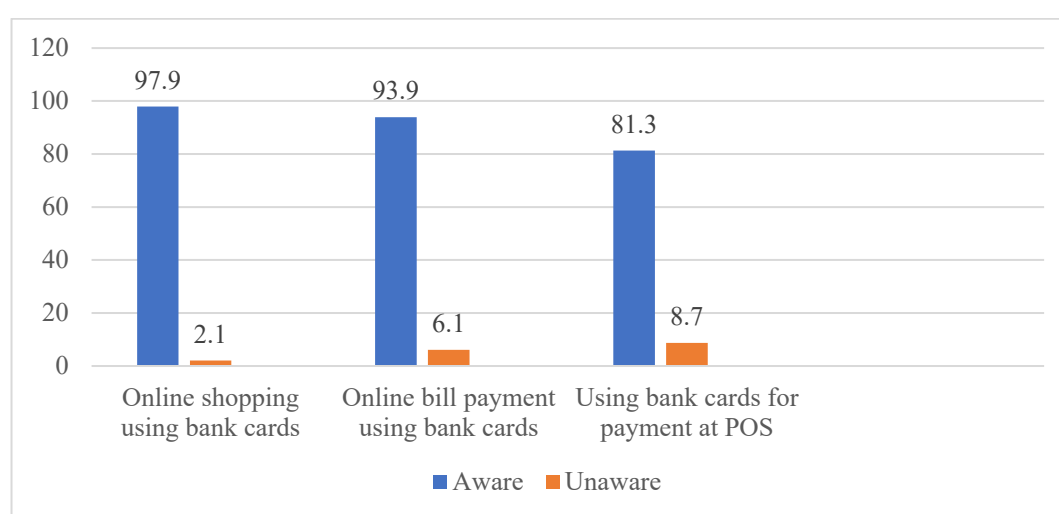


Source: Primary Data

It was found that the key facilities under the ATM services category had varying levels of awareness among the respondents. In Chart 3.3, it is seen that the cash withdrawal facility of the ATM registered the highest level of awareness (99.7%). ATM facilities like cash deposit and fund transfer also register high awareness levels at 83.7% and 83.1% respectively. The utility bill payment facility under ATM was also revealed to have satisfactory awareness levels of 76.6%. However, certain ATM facilities, such as the facility to apply for loans, had very low awareness levels among

bank customers, wherein only 50.9% awareness level was registered. This data indicated that many bank customers are still unaware of the availability of such facilities when using ATMs. Therefore, it can be noted that the general awareness about the existence and basic functions of ATM may be high; however, there are inconsistencies in the awareness levels of the different facilities under the ATM service category.

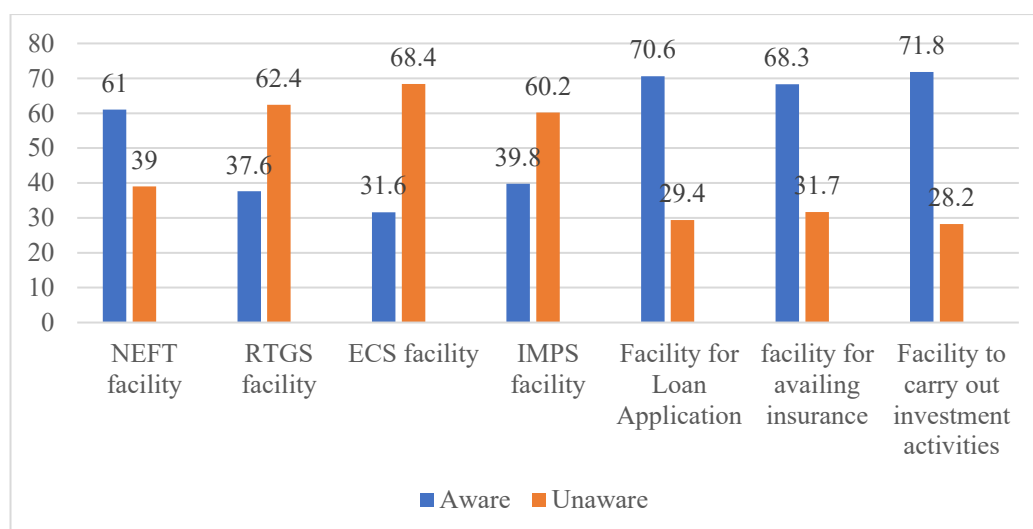
Chart 3.4: Awareness Levels of Key Facilities Under Debit/Credit Card Services



Source: Primary Data

All key facilities under debit/credit card services of e-banking were found to have high levels of awareness among the respondents. Use of bank cards for online shopping purposes showed the highest level of awareness at 97.9%. The awareness levels for online bill payment facilities and payment at POS facilities were found to be 93.9% and 81.3% respectively. There is an overall high level of awareness for debit/credit card services in the state.

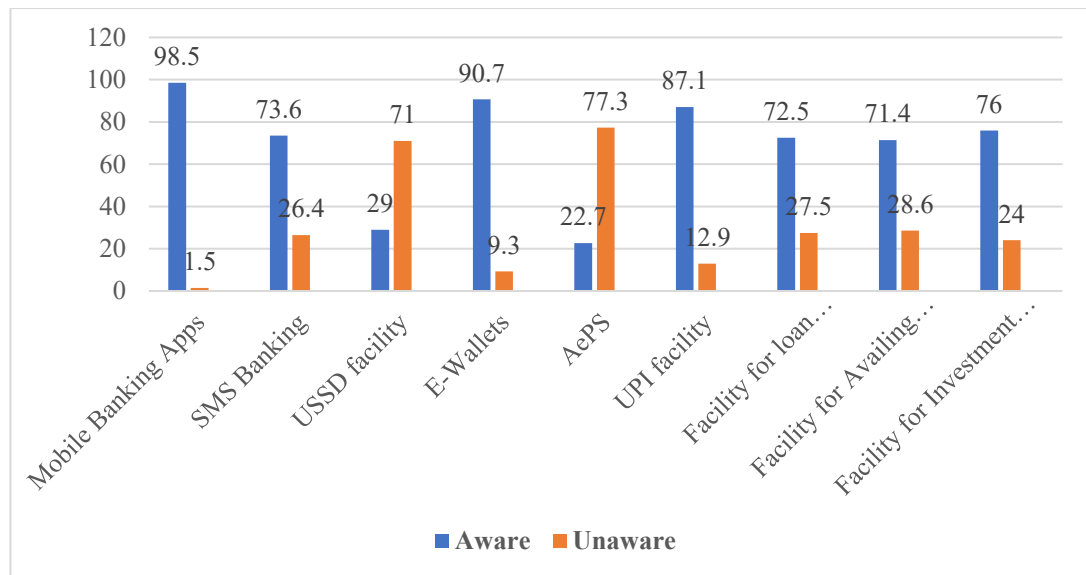
Chart 3.5: Awareness Levels of Key Facilities Under Internet Banking Services



Source: Primary Data

Chart 3.5 illustrates the awareness levels of key facilities within the internet banking services category. Overall, the awareness of these facilities was significantly lower compared to other e-banking service categories. The highest awareness was observed for investment-related activities, with 71.8% of respondents aware of this facility. Similar to the ATM service category, inconsistencies were evident across different internet banking facilities. Notably, a substantial portion of respondents were unaware of several key services: 62.4% were unaware of RTGS, 68.4% were unaware of ECS, and 60.2% were unaware of IMPS facilities.

Chart 3.6: Awareness Levels of Key Facilities Under Mobile Banking Services



Source: Primary Data

The data for awareness levels of the key facilities under mobile banking services also revealed interesting results. While certain facilities like mobile banking apps (98.5%), e-wallets (90.7%) and UPI facilities (87.1%) were found to have high levels of awareness among the respondents, other facilities such as SMS banking, loan application, availing insurance and investment activities were found to have an average of 72% awareness levels only. Only a small percentage of customers were found to be aware of facilities like USSD (29%) and AePS (22.7%).

3.3.1 Testing of Hypothesis I (H1)

Hypothesis I (H1): There is a high level of awareness of e-banking services in Nagaland.

The following Null Hypothesis and Alternative Hypothesis were constructed to test the validity of Hypothesis I (H1) using One Proportion Z-Test.

Null Hypothesis:

H_0 : The awareness level of e-banking services in Nagaland is equal to the threshold level of 80%.

H₁: The awareness level of e-banking services in Nagaland is greater than the threshold level of 80% i.e., high awareness.

The test statistic is:

$$Z = \frac{p-P}{\sqrt{\frac{PQ}{n}}} \sim N(0,1)$$

Where, n = sample size

$$p = \text{sample proportion} = \frac{x}{n}$$

x = number of success or number of individuals aware about e-banking

P = population proportion

$$Q = 1 - P$$

The test was conducted on the major e-banking service categories separately. The test results thus produced are presented in Table 3.1, which is given below.

Table 3.1: Results of One Proportion Z-Test for Major E-Banking Service Categories

Category	Z Value	Tabulated Z Value at 5% Level of Significance	Decision
ATM Services	2.5	1.645	2.5 > 1.645, null hypothesis is rejected
Internet Banking Services	8	1.645	8 > 1.645, null hypothesis is rejected
Credit Card Services	2	1.645	2 > 1.645, null hypothesis is rejected
Debit Card Services	2.5	1.645	2.5 > 1.645, null hypothesis is rejected
Mobile Banking Services	8	1.645	8 > 1.645, null hypothesis is rejected

The One Proportion Z-Test was conducted to test the null hypothesis H₀: *The awareness level of e-banking services in Nagaland is equal to the threshold level of 80%, across major e-banking service categories.* The results led to a categorical rejection of H₀ for all categories. Consequently, the Alternative Hypothesis H₁: *The awareness level of e-banking services in Nagaland is greater than the threshold level of 80%, is accepted for all categories.* This confirms that bank customers in Nagaland

exhibit a high level of awareness of e-banking services, thereby supporting Hypothesis I (H1).

3.3.2 Additional statistical tests conducted to determine the consistency of awareness levels of e-banking services within selected demographic factors

Awareness levels for e-banking services can vary for a variety of factors. For the present study, four demographic factors, namely- gender, age, educational qualification and occupation of the respondents, were selected to further analyse the e-banking awareness levels in Nagaland.

In addition to Hypothesis I (H1), to further substantiate the findings, Pearson's Chi-Square Test was used to examine the consistency of the awareness levels within the selected demographic factors.

In this regard, the following hypotheses were constructed:

1. **Hypothesis 3 (H₀₃)**- There is no significant difference in awareness levels of e-banking services with respect to gender.
2. **Hypothesis 4 (H₀₄)**- There is no significant difference in awareness levels of e-banking services with respect to age.
3. **Hypothesis 5 (H₀₅)**- There is no significant difference in awareness levels of e-banking services with respect to educational qualification.
4. **Hypothesis 6 (H₀₆)**- There is no significant difference in awareness levels of e-banking services with respect to occupation.

The different key facilities available under each category of e-banking services and the major categories themselves were considered as the parameters against which the consistency in awareness levels will be statistically tested. The 29 parameters are listed below in Table 3.2.

Table 3.2: List of Parameters for Statistical Analysis of E-Banking Awareness Levels

Sl/no	Parameter
1	ATM services
2	Cash withdrawal facility under ATM services

3	Fund transfer facility under ATM services
4	Utility bills payment facility under ATM services
5	Application for loans facility under ATM services
6	Cash deposit facility under ATM services
7	Credit card services
8	Debit card services
9	Conducting online shopping activities using debit/credit card services
10	Payment of utility bills using debit/credit card services
11	Payment at POS facility using debit/credit card services
12	Internet banking services
13	NEFT services
14	RTGS services
15	IMPS services
16	ECS services
17	Application for loans facility using internet banking services
18	Availing insurance facility using internet banking services
19	Carrying out investment activities using internet banking services
20	Mobile banking services
21	Availability of mobile banking apps
22	SMS banking services
23	USSD services
24	E-Wallet services
25	UPI services
26	AePS services
27	Application for loans facility using mobile banking services
28	Availing insurance facility using mobile banking services
29	Carrying out investment activities using mobile banking services

3.3.3 Results of Pearson's Chi-Square tests conducted

The results of the Pearson's Chi-Square tests conducted on the basis of the selected demographic factors are presented below in tabulated form.

Table 3.3: Pearson's Chi-Square Test Results of ATM Services Awareness Levels (Gender)

ATM Services and Facilities	X ²	df	p-value	Decision
ATM services	1.051	1	0.305	0.305 > 0.05, null hypothesis is accepted
Cash withdrawal facility under ATM services	0.941	1	0.332	0.332 > 0.05, null hypothesis is accepted
Fund transfer facility under ATM services	0.713	1	0.398	0.398 > 0.05, null hypothesis is accepted
Utility bills payment facility under ATM services	1.204	1	0.273	0.273 > 0.05, null hypothesis is accepted
Application for loans facility under ATM services	0.865	1	0.352	0.352 > 0.05, null hypothesis is accepted
Cash deposit facility under ATM services	0.761	1	0.383	0.383 > 0.05, null hypothesis is accepted

The Pearson's Chi-Square Test results showed that gender had no significant influence on the awareness levels for ATM services for all the listed parameters, where $p\text{-value} > 0.05$ for all parameters. Hence, the null hypothesis is accepted for all parameters in the study area.

Table 3.4: Pearson's Chi-Square Test Results of Debit / Credit Card Services Awareness Levels (Gender)

Debit/ Credit Card services and facilities	X ²	df	p-value	Decision
Credit card services	0.164	1	0.685	0.685 > 0.05, null hypothesis is accepted
Debit card services	0.411	1	0.521	0.521 > 0.05, null hypothesis is accepted
Conducting online shopping activities using debit/credit card services	0.191	1	0.662	0.662 > 0.05, null hypothesis is accepted
Payment of utility bills using debit/credit card services	1.598	1	0.206	0.206 > 0.05, null hypothesis is accepted

Payment at POS facility using debit/credit card services	2.711	1	0.100	0.100 > 0.05, null hypothesis is accepted
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Here also, the calculated p-values are all greater than 0.05; therefore, the hypothesis concerning the awareness level of debit/credit cards is accepted for all the listed parameters. Hence, it is concluded that gender has no significant influence on awareness levels of debit/credit cards.

Table 3.5: Pearson's Chi-Square Test Results of Internet Banking Services Awareness Levels (Gender)

Internet Banking Services and Facilities	X ²	df	p-value	Decision
Internet banking services	0.096	1	0.756	0.756 > 0.05, null hypothesis is accepted
NEFT services	1.154	1	0.283	0.283 > 0.05, null hypothesis is accepted
RTGS services	2.718	1	0.099	0.099 > 0.05, null hypothesis is accepted
IMPS services	1.062	1	0.170	0.170 > 0.05, null hypothesis is accepted
ECS services	1.879	1	0.303	0.303 > 0.05, null hypothesis is accepted
Application for loans facility using internet banking services	0.059	1	0.808	0.808 > 0.05, null hypothesis is accepted
Availing insurance facility using internet banking services	0.019	1	0.891	0.891 > 0.05, null hypothesis is accepted
Carrying out investment activities using internet banking services	0.263	1	0.608	0.608 > 0.05, null hypothesis is accepted

Like ATM services and debit/credit card services, all the test results for awareness levels of internet banking services showed that p-value > 0.05 across all the parameters. Therefore, the null hypothesis for each parameter stands accepted.

Table 3.6: Pearson's Chi-Square Test Results of Mobile Banking Services Awareness Levels (Gender)

Mobile Banking Services and Facilities	X ²	df	p-value	Decision
Mobile banking services	0.124	1	0.724	0.724 > 0.05, null hypothesis is accepted
Availability of mobile banking apps	0.281	1	0.596	0.596 > 0.05, null hypothesis is accepted
SMS banking services	0.153	1	0.696	0.696 > 0.05, null hypothesis is accepted
USSD services	5.327	1	0.021	0.021 < 0.05, null hypothesis is rejected
E-Wallet services	0.286	1	0.593	0.593 > 0.05, null hypothesis is accepted
UPI services	0.074	1	0.786	0.786 > 0.05, null hypothesis is accepted
AePS services	1.499	1	0.221	0.221 > 0.05, null hypothesis is accepted
Application for loans facility using mobile banking services	0.014	1	0.907	0.907 > 0.05, null hypothesis is accepted
Availing insurance facility using mobile banking services	0.118	1	0.732	0.732 > 0.05, null hypothesis is accepted
Carrying out investment activities using mobile banking services	0.007	1	0.935	0.935 > 0.05, null hypothesis is accepted

The test results showed that the awareness level for mobile banking services was not affected by gender for most of the parameters. However, with regard to awareness levels of USSD facilities under mobile banking, the p-value calculated was 0.021, which is lower than the significance level of 0.05. Therefore, the hypothesis that there is no significant difference in the awareness levels of USSD services between the genders in Nagaland is rejected. Thereby suggesting that significant differences existed for USSD facilities under mobile banking services on the basis of gender.

Table 3.7: Pearson's Chi-Square Test Results of ATM Services Awareness Levels (Age)

ATM Services and Facilities	X ²	df	p-value	Decision
ATM services	27.497	4	0.000	0.000 < 0.05, null hypothesis is rejected
Cash withdrawal facility under ATM services	1.063	4	0.900	0.900 > 0.05, null hypothesis is accepted

Fund transfer facility under ATM services	12.134	4	0.016	$0.016 < 0.05$, null hypothesis is rejected
Utility bills payment facility under ATM services	9.887	4	0.042	$0.0420 < 0.05$, null hypothesis is rejected
Application for loans facility under ATM services	5.304	4	0.258	$0.258 > 0.05$, null hypothesis is accepted
Cash deposit facility under ATM services	8.520	4	0.074	$0.074 > 0.05$, null hypothesis is accepted

Regarding respondents' age, significant differences were observed for ATM services in general as well as for fund transfer and utility bills payment facilities within the ATM service category. The p-values were 0.000, 0.016 and 0.042, respectively, all below the 0.05 significance level. Therefore, it can be concluded that the age of e-banking users has a significant impact on awareness levels for certain ATM service facilities.

Table 3.8: Pearson's Chi-Square Test Results of Debit / Credit Card Services Awareness Levels (Age)

Debit/ Credit Card services and facilities	X ²	df	p-value	Decision
Credit card services	3.169	4	0.530	$0.530 > 0.05$, null hypothesis is accepted
Debit card services	1.450	4	0.835	$0.835 > 0.05$, null hypothesis is accepted
Conducting online shopping activities using debit/credit card services	2.078	4	0.721	$0.721 > 0.05$, null hypothesis is accepted
Payment of utility bills using debit/credit card services	1.180	4	0.881	$0.881 > 0.05$, null hypothesis is accepted
Payment at POS facility using debit/credit card services	3.604	4	0.462	$0.462 > 0.05$, null hypothesis is accepted

The test results reveal that for all parameters, the p-values are greater than 0.05. This implies that the null hypothesis is accepted in all cases, indicating no statistically significant difference in satisfaction levels for debit/credit card services across the

different age groups. Hence, we can conclude that, age does not significantly influence customer satisfaction with debit/credit services in the study area.

Table 3.9: Pearson's Chi-Square Test Results of Internet Banking Services Awareness Levels (Age)

Internet Banking Services and Facilities	X ²	df	p-value	Decision
Internet banking services	1.650	4	0.800	0.800 > 0.05, null hypothesis is accepted
NEFT services	22.091	4	0.000	0.000 < 0.05, null hypothesis is rejected
RTGS services	12.420	4	0.014	0.014 < 0.05, null hypothesis is rejected
IMPS services	4.061	4	0.398	0.398 > 0.05, null hypothesis is accepted
ECS services	12.297	4	0.015	0.015 < 0.05, null hypothesis is rejected
Application for loans facility using internet banking services	4.958	4	0.292	0.292 > 0.05, null hypothesis is accepted
Availing insurance facility using internet banking services	6.572	4	0.160	0.160 > 0.05, null hypothesis is accepted
Carrying out investment activities using internet banking services	5.713	4	0.222	0.222 > 0.05, null hypothesis is accepted

The test results for awareness levels relating to NEFT, RTGS and ECS facilities under internet banking category showed that the p-values were 0.000, 0.014 and 0.015 respectively, which are all below the required significance level of 0.05. Thereby signifying that significant differences in the awareness levels on the basis of age existed for these parameters, we conclude that internet banking awareness is influenced to some degree according to the age of the users.

Table 3.10: Pearson's Chi-Square Test Results of Mobile Banking Services Awareness Levels (Age)

Mobile Banking Services and Facilities	X ²	df	p-value	Decision
Mobile banking services	3.298	4	0.086	0.010 > 0.05, null hypothesis is accepted

Availability of mobile banking apps	0.983	4	0.912	0.912 > 0.05, null hypothesis is accepted
SMS banking services	1.882	4	0.758	0.758 > 0.05, null hypothesis is accepted
USSD services	3.992	4	0.407	0.407 > 0.05, null hypothesis is accepted
E-Wallet services	0.428	4	0.980	0.980 > 0.05, null hypothesis is accepted
UPI services	4.506	4	0.342	0.342 > 0.05, null hypothesis is accepted
AePS services	0.895	4	0.925	0.925 > 0.05, null hypothesis is accepted
Application for loans facility using mobile banking services	6.288	4	0.907	0.907 > 0.05, null hypothesis is accepted
Availing insurance facility using mobile banking services	5.416	4	0.179	0.179 > 0.05, null hypothesis is accepted
Carrying out investment activities using mobile banking services	1.713	4	0.247	0.247 > 0.05, null hypothesis is accepted

The test results for significant differences in mobile banking services on the basis of age showed that all calculated p-values across all listed parameters were greater than the significance level of 0.05. Therefore, the null hypothesis that there is no significant difference in the awareness level of mobile banking services with respect to age stands accepted.

Table 3.11: Pearson's Chi-Square Test Results of ATM Services Awareness Levels (Educational Qualification)

ATM Services and Facilities	X ²	df	p-value	Decision
ATM services	7.741	5	0.171	0.171 > 0.05, null hypothesis is accepted
Cash withdrawal facility under ATM services	1.749	5	0.883	0.883 > 0.05, null hypothesis is accepted
Fund transfer facility under ATM services	22.675	5	0.000	0.000 < 0.05, null hypothesis is rejected
Utility bills payment facility under ATM services	5.692	5	0.337	0.337 > 0.05, null hypothesis is accepted
Application for loans facility under ATM services	9.355	5	0.096	0.096 > 0.05, null hypothesis is accepted
Cash deposit facility under ATM services	16.556	5	0.005	0.005 < 0.05, null hypothesis is rejected

Table 3.11 indicates that awareness levels for the fund transfer and cash deposit facilities under ATM service category vary significantly with respondents' educational qualification. The calculated p-values were 0.000 and 0.005 respectively, both below the significance level of 0.05, leading to the rejection of null hypotheses for these two facilities.

Table 3.12: Pearson's Chi-Square Test Results of Debit / Credit Card Services Awareness Levels (Educational Qualification)

Debit/ Credit Card services and facilities	X ²	df	p-value	Decision
Credit card services	14.158	5	0.015	0.015 < 0.05, null hypothesis is rejected
Debit card services	1.759	5	0.881	0.881 > 0.05, null hypothesis is accepted
Conducting online shopping activities using debit/credit card services	18.251	5	0.003	0.003 < 0.05, null hypothesis is rejected
Payment of utility bills using debit/credit card services	3.955	5	0.556	0.556 > 0.05, null hypothesis is accepted
Payment at POS facility using debit/credit card services	9.724	5	0.083	0.083 > 0.05, null hypothesis is accepted

Similar to ATM services, under debit/credit card services category, the p-values for 'credit card services' and 'online shopping using debit/credit cards' were 0.015 and 0.003 respectively, both below the 0.05 significance level. Hence, the hypotheses for these facilities are rejected, indicating that the awareness of credit card services and online shopping using debit/credit cards varies significantly with the educational qualifications of users.

Table 3.13: Pearson's Chi-Square Test Results of Internet Banking Services Awareness Levels (Educational Qualification)

Internet Banking Services and Facilities	X ²	df	p-value	Decision
Internet banking services	3.673	5	0.597	0.597 > 0.05, null hypothesis is accepted

NEFT services	28.981	5	0.000	0.000 < 0.05, null hypothesis is rejected
RTGS services	14.242	5	0.014	0.014 < 0.05, null hypothesis is rejected
IMPS services	11.688	5	0.039	0.039 < 0.05, null hypothesis is rejected
ECS services	9.089	5	0.106	0.106 > 0.05, null hypothesis is accepted
Application for loans facility using internet banking services	7.202	5	0.206	0.206 > 0.05, null hypothesis is accepted
Availing insurance facility using internet banking services	4.024	5	0.546	0.546 > 0.05, null hypothesis is accepted
Carrying out investment activities using internet banking services	0.116	5	0.471	0.471 > 0.05, null hypothesis is accepted

Table 3.13 shows the test results for significant differences, due to the educational qualification of respondents, in the awareness levels of internet banking and the different facilities found under this category of services. Here, it is found that for three parameters, namely, NEFT, RTGS and IMPS services, the p-values have been calculated as 0.000, 0.014 and 0.039, respectively, which are all below the significance level of 0.05. Therefore, the hypothesis that there are no significant differences in the awareness levels of these facilities, with respect to educational qualification, stands rejected.

Table 3.14: Pearson's Chi-Square Test Results of Mobile Banking Services Awareness Levels (Educational Qualification)

Mobile Banking Services and Facilities	X ²	df	p-value	Decision
Mobile banking services	4.801	5	0.441	0.441 > 0.05, null hypothesis is accepted
Availability of mobile banking apps	7.621	5	0.178	0.178 > 0.05, null hypothesis is accepted
SMS banking services	2.771	5	0.735	0.735 > 0.05, null hypothesis is accepted
USSD services	7.044	5	0.217	0.217 > 0.05, null hypothesis is accepted
E-Wallet services	1.928	5	0.859	0.859 > 0.05, null hypothesis is accepted
UPI services	2.371	5	0.796	0.796 > 0.05, null hypothesis is accepted
AePS services	1.907	5	0.862	0.862 > 0.05, null hypothesis is accepted
Application for loans facility using mobile banking services	4.334	5	0.502	0.502 > 0.05, null hypothesis is accepted

Availing insurance facility using mobile banking services	4.924	5	0.425	0.425 > 0.05, null hypothesis is accepted
Carrying out investment activities using mobile banking services	2.803	5	0.730	0.730 > 0.05, null hypothesis is accepted

Regarding mobile banking service, the test results indicate that educational qualification does not significantly influence awareness levels, either for the overall service or for its individual facilities. All calculate p-values for mobile banking parameters exceeded the 0.05 significance level; therefore, the null hypotheses for all parameters are accepted.

Table 3.15: Pearson's Chi-Square Test Results of ATM Services Awareness Levels (Occupation)

ATM Services and Facilities	X ²	df	p-value	Decision
ATM services	4.341	5	0.501	0.501 > 0.05, null hypothesis is accepted
Cash withdrawal facility under ATM services	4.388	5	0.495	0.495 > 0.05, null hypothesis is accepted
Fund transfer facility under ATM services	17.385	5	0.004	0.004 < 0.05, null hypothesis is rejected
Utility bills payment facility under ATM services	10.245	5	0.069	0.069 > 0.05, null hypothesis is accepted
Application for loans facility under ATM services	5.364	5	0.373	0.373 > 0.05, null hypothesis is accepted
Cash deposit facility under ATM services	6.490	5	0.261	0.261 > 0.05, null hypothesis is accepted

When examining the impact of respondents' occupations on awareness level for ATM services, it was found that the 'fund transfer' facility showed a significant difference with a p-value of 0.004 (below the 0.05 significance level). Therefore, the null hypothesis is rejected, confirming that awareness of the fund transfer facility varies significantly with occupation. For all other ATM facilities, p-value exceeded

0.05, indicating no significant differences in awareness levels with respect to occupation.

Table 3.16: Pearson's Chi-Square Test Results of Debit / Credit Card Services Awareness Levels (Occupation)

Debit/ Credit Card services and facilities	X ²	df	p-value	Decision
Credit card services	9.513	5	0.090	0.090 > 0.05, null hypothesis is accepted
Debit card services	4.586	5	0.468	0.468 > 0.05, null hypothesis is accepted
Conducting online shopping activities using debit/credit card services	8.486	5	0.131	0.131 > 0.05, null hypothesis is accepted
Payment of utility bills using debit/credit card services	1.246	5	0.940	0.940 > 0.05, null hypothesis is accepted
Payment at POS facility using debit/credit card services	2.947	5	0.708	0.708 > 0.05, null hypothesis is accepted

The test results reveal that for all parameters, the p-values are greater than 0.05. This implies that the null hypothesis is accepted in all cases, indicating no statistically significant difference in awareness levels for debit/credit card services across the different occupation groups. Hence, we can conclude that occupation does not significantly influence customer awareness with debit/credit card services in the study area.

Table 3.17: Pearson's Chi-Square Test Results of Internet Banking Services Awareness Levels (Occupation)

Internet Banking Services and Facilities	X ²	df	p-value	Decision
Internet banking services	10.259	5	0.068	0.068 > 0.05, null hypothesis is accepted
NEFT services	39.306	5	0.000	0.000 < 0.05, null hypothesis is rejected
RTGS services	39.629	5	0.000	0.000 < 0.05, null hypothesis is rejected

IMPS services	19.151	5	0.002	0.002 < 0.05, null hypothesis is rejected
ECS services	24.744	5	0.000	0.000 < 0.05, null hypothesis is rejected
Application for loans facility using internet banking services	6.993	5	0.221	0.221 > 0.05, null hypothesis is accepted
Availing insurance facility using internet banking services	8.179	5	0.147	0.147 > 0.05, null hypothesis is accepted
Carrying out investment activities using internet banking services	9.833	5	0.080	0.080 > 0.05, null hypothesis is accepted

The results from the Pearson's Chi-Square tests conducted on the different facilities under the internet banking category revealed that in the cases of NEFT, RTGS, IMPS and ECS facilities, the p-values calculated were 0.000, 0.000, 0.002 and 0.000, respectively, all lower than the significance level of 0.05; as such, the hypotheses for these facilities were rejected. This implies that the occupation status of the users had some influence on the awareness levels for NEFT, RTGS, IMPS and ECS services under internet banking.

Table 3.18: Pearson's Chi-Square Test Results of Mobile Banking Services Awareness Levels (Occupation)

Mobile Banking Services and Facilities	X ²	df	p-value	Decision
Mobile banking services	12.244	5	0.032	0.032 < 0.05, null hypothesis is rejected
Availability of mobile banking apps	2.186	5	0.823	0.823 > 0.05, null hypothesis is accepted
SMS banking services	4.950	5	0.422	0.422 > 0.05, null hypothesis is accepted
USSD services	5.048	5	0.410	0.410 > 0.05, null hypothesis is accepted
E-Wallet services	4.537	5	0.475	0.475 > 0.05, null hypothesis is accepted
UPI services	12.265	5	0.031	0.031 < 0.05, null hypothesis is rejected
AePS services	7.532	5	0.184	0.184 > 0.05, null hypothesis is accepted
Application for loans facility using mobile banking services	6.487	5	0.262	0.262 > 0.05, null hypothesis is accepted
Availing insurance facility using mobile banking services	9.796	5	0.081	0.081 > 0.05, null hypothesis is accepted

Carrying out investment activities using mobile banking services	9.400	5	0.094	0.094 > 0.05, null hypothesis is accepted
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The p-value for mobile banking services in general was found to be 0.032, which is below the significance level of 0.05. Moreover, the same was also found to be true for the UPI service facility under the mobile banking category, where the p-value was calculated as 0.031. Therefore, the hypotheses for both these cases were rejected, thus implying that there exist significant differences in the awareness levels for these services with respect to the occupation of the users.

However, for all the other facilities (parameters) under mobile banking, the p-values were higher than the significance level of 0.05, thereby indicating that there is no statistically significant difference in the awareness levels for these facilities under the mobile banking category with respect to occupation.

Table 3.19: Summary of Pearson's Chi-Square Test Results for Awareness Levels (Significant Findings)

Null Hypotheses	X ²	df	p-value	Decision
There is no significant difference in the awareness levels of USSD services between the genders in Nagaland.	5.327	1	0.021	0.021 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of ATM services with respect to age.	27.497	4	0.000	0.000 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of fund transfer facility under ATM services with respect to age.	12.134	4	0.016	0.016 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of utility bill payment facility under ATM services with respect to age.	9.887	4	0.042	0.0420 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of NEFT services with respect to age.	22.091	4	0.000	0.000 < 0.05, null hypothesis is rejected

There is no significant difference in the awareness levels of RTGS services with respect to age.	12.420	4	0.014	$0.014 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of ECS services with respect to age.	12.297	4	0.015	$0.015 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of fund transfer facility under ATM services with respect to educational qualification.	22.675	5	0.000	$0.000 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of cash deposit facility under ATM services with respect to educational qualification.	16.556	5	0.005	$0.005 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of credit card services with respect to educational qualification.	14.158	5	0.015	$0.015 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of online shopping possibility using debit/credit card services with respect to educational qualification.	18.251	5	0.003	$0.003 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of NEFT services with respect to educational qualification.	28.981	5	0.000	$0.000 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of RTGS services with respect to educational qualification.	14.242	5	0.014	$0.014 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of IMPS services with respect to educational qualification.	11.688	5	0.039	$0.039 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of fund transfer facility under ATM services with respect to occupation.	17.385	5	0.004	$0.004 < 0.05$, null hypothesis is rejected
There is no significant difference in the awareness levels of NEFT services with respect to occupation.	39.306	5	0.000	$0.000 < 0.05$, null hypothesis is rejected

There is no significant difference in the awareness levels of RTGS services with respect to occupation.	39.629	5	0.000	0.000 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of IMPS services with respect to occupation.	19.151	5	0.002	0.002 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of ECS services with respect to occupation.	24.744	5	0.000	0.000 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of mobile banking services with respect to occupation.	12.244	5	0.032	0.032 < 0.05, null hypothesis is rejected
There is no significant difference in the awareness levels of UPI services with respect to occupation.	12.265	5	0.031	0.031 < 0.05, null hypothesis is rejected

A total of 116 independent Pearson's Chi-Square tests were conducted, out of which the null hypothesis was rejected in only 21 cases. This implies that significant differences in certain e-banking services with respect to at least one of the four demographic factors were found in these 21 tests, as shown in Table 3.19.

The results of these tests indicated that gender had the least impact on awareness levels of e-banking services in Nagaland. Meanwhile, demographic factors like age, educational qualification and occupation were shown to have some noteworthy impact on the awareness levels of e-banking services. ATM services were the only major e-banking service category that was revealed to have significant differences in awareness levels with regard to age, educational qualification, and occupation, while the occupation of respondents had a significant impact on another major e-banking service category, i.e., mobile banking services. Internet banking facilities such as NEFT, RTGS and IMPS also showed significant differences in awareness levels with respect to age, educational qualification and occupation.

3.4 The Concept of Perception

Psychology defines ‘perception’ as the process of selecting and organizing sensory information and interpreting it into meaningful information about something. It is the thought process that results in the person’s ability to produce meaningful conclusions and deductions about a thing, situation, person, etc. It symbolizes the manner in which a person can make sense of his/ her environment and also categorically examine whether or not he/ she like or dislike certain aspects of it.

3.4.1 An insight into understanding the concept of customers’ perception

In the context of business and marketing, in simple terms, a customer’s perception refers to his/her feelings and/or thoughts with regard to the products and/or services that the customer uses. It determines the customers’ loyalty and retention with the brand. Perception can therefore either be positive or negative, depending on the nature of feelings or thoughts that the customer associates with a certain product or service. Positive perception indicates the person’s affinity, approval and satisfaction with the product or service. On the other hand, the negative perception often leads to dissatisfaction and discontinuation in further usage or adoption of products and services. *The success or failure of a business to a great extent is influenced by consumer perception and is therefore an important component of our relationship with our customers. Customer satisfaction is a mental state that results from the customer’s comparison of expectation prior to a purchase with performance perception after a purchase* (Thiruvengkathraj & Ventrivel, 2017)³⁹.

Therefore, the perception of customers can be considered a key determinant of the overall success or failure of the products and services. Due diligence should be directed towards understanding the exact nature of customers’ expectations, so that these factors can be incorporated into the product/service offerings. Customers’ experiences with regard to the usage of the products and services must meet their pre-disposed expectations.

³⁹ Thiruvengkathraj, T. R., & Ventrivel, S. (2017). A study on customer perception. *Indian Journal of Research Trends and Innovation (IJRTI)*, 2(5), 126-130.

The discrepancies or gaps between the marketer's perception of service quality and the customer's expectations arise because of the lack of understanding of what the customer actually needs or wants. Service quality perceptions result from a comparison of consumer expectations with actual service performance (Parasuraman et al. 1985)⁴⁰.

Business today has become drastically more competitive and customer-oriented. Products and services are being designed with the primary objective of meeting customers' needs. Customers' expectations are higher than ever before, and it has become imperative for businesses to meet these expectations to influence the customers' perception in a positive manner. Customers' experience with e-banking services can impact their satisfaction.

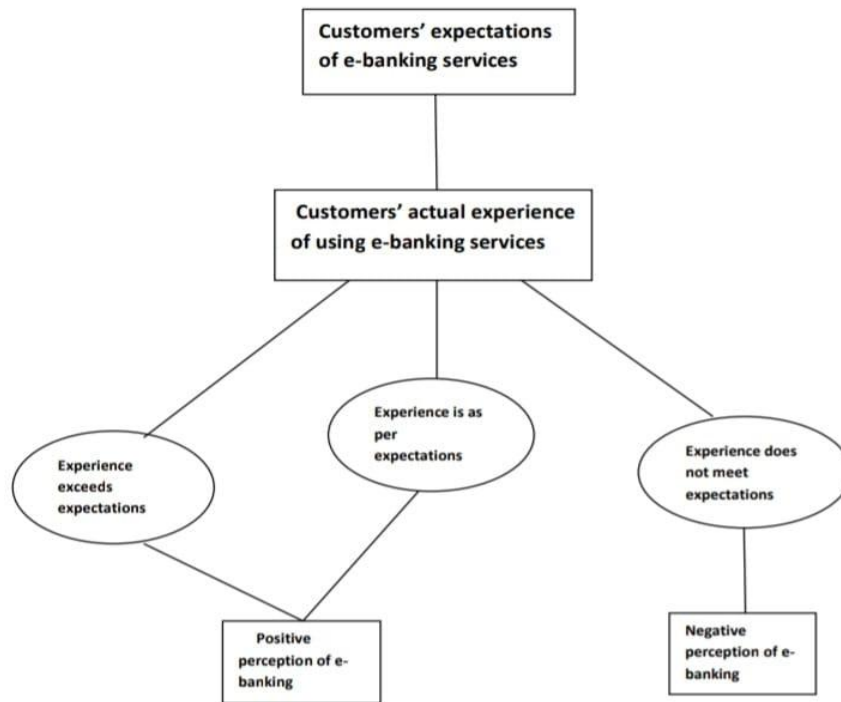
For the present study, the researcher has developed a conceptual model, as given in Figure 3.1, to provide a clear understanding of the relationship between the customers' expectations, their experience of using e-banking services and the resulting perception of these services. The model illustrates that:

1. When customers experience their expectations, it leads to a positive perception of e-banking services.
2. When customers' experience matches their expectations, it also results in a positive perception, though possibly less pronounced.
3. When customers' experience does not meet their expectations, it results in a negative perception of e-banking services.

This framework helps in analysing the gap between customers' expectations and experiences, providing a basis for measuring satisfaction and overall perception of e-banking services in Nagaland.

⁴⁰ Parasuraman, A.P. et al. (1985). A conceptual model of service quality and its implication, *Journal of Marketing*, 49(4), 41-50.

Figure 3.1: Conceptual Model of Relationship Between Customers' Expectations, Experiences and Perception



Bridging the gap between the customers' expectations and their actual experiences by effectively meeting or even exceeding these expectations leads to a higher level of customer satisfaction. This, in turn, fosters a more positive perception of e-banking services among the bank customers, and conversely, a failure to meet expectations may result in a negative perception.

Therefore, analysing customers' perception of e-banking services provides valuable insights into the impact of these services on bank customers and allows for informed speculation regarding their future development. In this context, such an analysis is crucial for understanding the scope and potential of e-banking not only in the state of Nagaland but also across India.

3.4.2 Analysis of customers' perception of e-banking services

In the present study, a 3-point Likert scale where, 1- *experience was not as expected*, 2- *experience is as per expectation*, 3- *experience exceeded expectation*, was

used to collect primary data through questionnaire survey, to assess the respondents' perception of the different e-banking service categories based on 13 service parameters, namely reliability, cost-effectiveness, convenience, security, efficiency, fulfilment, understandability, assurance, accessibility, speed of processing, responsiveness, quality of service and time-saving.

For the present study, establishment of a minimum 80% match rate between the respondents' expectations of e-banking services and the corresponding experience when using e-banking services has been taken as the threshold for determining a definitive positive perception of the e-banking services. This implied that the respondents should indicate a 2 or 3 score on the Likert scale to qualify against the set criterion for positive perception. The data analysis has been presented in Tables 3.20, 3.21, 3.22 and 3.23, which are given below.

Table 3.20: Analysis of Respondents' Perception of ATM Services

PARAMETER	Percentage of Respondents (%)			Expectation & Experience Match Rate (%)	PERCEPTION
	1	2	3		
Reliability	8.5	66.5	25.1	91.6	POSITIVE
Cost effectiveness	11.7	70.6	17.7	88.3	POSITIVE
Convenience	9.6	63.6	26.8	90.4	POSITIVE
Security	12.0	61.5	26.2	87.7	POSITIVE
Efficiency	6.8	65.9	27.3	93.2	POSITIVE
Fulfilment	8.5	60.1	31.4	91.5	POSITIVE
Understandability	8.5	65.8	25.7	91.5	POSITIVE
Assurance	11.1	61.5	27.4	88.9	POSITIVE
Ease of accessibility	13.4	62.7	23.9	86.6	POSITIVE
Speed of processing	12.5	60.6	26.9	87.5	POSITIVE
Responsiveness	11.1	65.5	23.4	88.9	POSITIVE
Quality of service	14.0	62.4	23.6	86	POSITIVE
Time-saving	6.7	64.4	28.9	93.3	POSITIVE

Source: Primary Data

With respect to the ATM category of e-banking services, it was found that all service quality parameters registered an ‘expectation and experience’ match rate of 85% and above. As such, it was determined that there exists a strong positive perception of ATM services by the bank customers in Nagaland. It was also found that the ‘time-saving’ parameter under ATM services had the highest expectation and experience match rate, where 93.3% of the respondents indicated that their experience of using ATM services had been as per their expectations (64.4%) or even exceeded their expectations (28.9%) in certain cases.

Table 3.21: Analysis of Respondents’ Perception of Internet Banking Service

PARAMETER	Percentage of Respondents (%)			Expectation & Experience Match Rate (%)	PERCEPTION
	1	2	3		
Reliability	7.2	60.4	32.4	92.8	POSITIVE
Cost- effectiveness	13.8	65.5	20.7	86.2	POSITIVE
Convenience	8.1	56.2	35.7	91.9	POSITIVE
Security	10.2	66.1	23.7	89.8	POSITIVE
Efficiency	5.1	61.6	33.3	94.9	POSITIVE
Fulfilment	6.9	58.5	34.6	93.1	POSITIVE
Understandability	11.8	60.8	27.4	88.2	POSITIVE
Assurance	12.1	62.3	25.6	87.9	POSITIVE
Ease of accessibility	9.9	59.8	30.3	90.1	POSITIVE
Speed of processing	7.8	58.3	33.9	92.2	POSITIVE
Responsiveness	8.8	61.7	29.5	91.2	POSITIVE
Quality of service	9.1	60.8	30.1	90.9	POSITIVE
Time-saving	7.2	60.1	32.7	92.8	POSITIVE

Source: Primary Data

With regard to the internet banking service category, the primary data collected indicated an even stronger positive perception as compared to ATM services, wherein all service quality parameters were found to have at least an 86% expectation and experience match rate among the respondents. The ‘efficiency’ parameter under internet banking services had the highest expectation and experience match rate

(94.9%). It is safe to conclude that there exists a strong positive perception of internet banking services in Nagaland.

Table 3.22: Analysis of Respondents' Perception of Debit/Credit Card Services

PARAMETER	Percentage of Respondents (%)			Expectation & Experience Match Rate (%)	PERCEPTION
	1	2	3		
Reliability	8.5	74.0	17.5	91.5	POSITIVE
Cost- effectiveness	15.4	70.1	14.5	84.6	POSITIVE
Convenience	7.7	71.9	20.4	92.3	POSITIVE
Security	14.8	59.2	26.0	85.2	POSITIVE
Efficiency	6.3	68.5	25.2	93.7	POSITIVE
Fulfilment	6.5	66.2	27.3	93.5	POSITIVE
Understandability	11.9	68.2	19.9	88.1	POSITIVE
Assurance	14.2	62.7	23.1	85.8	POSITIVE
Ease of accessibility	10.7	71.0	18.3	89.3	POSITIVE
Speed of processing	10.7	68.3	21.0	89.3	POSITIVE
Responsiveness	12.2	69.5	18.3	87.8	POSITIVE
Quality of service	8.3	68.3	23.4	91.7	POSITIVE
Time-saving	13.6	67.8	18.6	86.4	POSITIVE

Source: Primary Data

The expectation and experience match rate for the different parameters under the debit/credit card service category of e-banking are also significantly high; however, compared to the other major e-banking service categories, it is relatively lower. The average match rate between respondents' expectations and experience for this category was 89.1%. The analysis revealed that there exists a high positive perception of debit/credit card services in Nagaland.

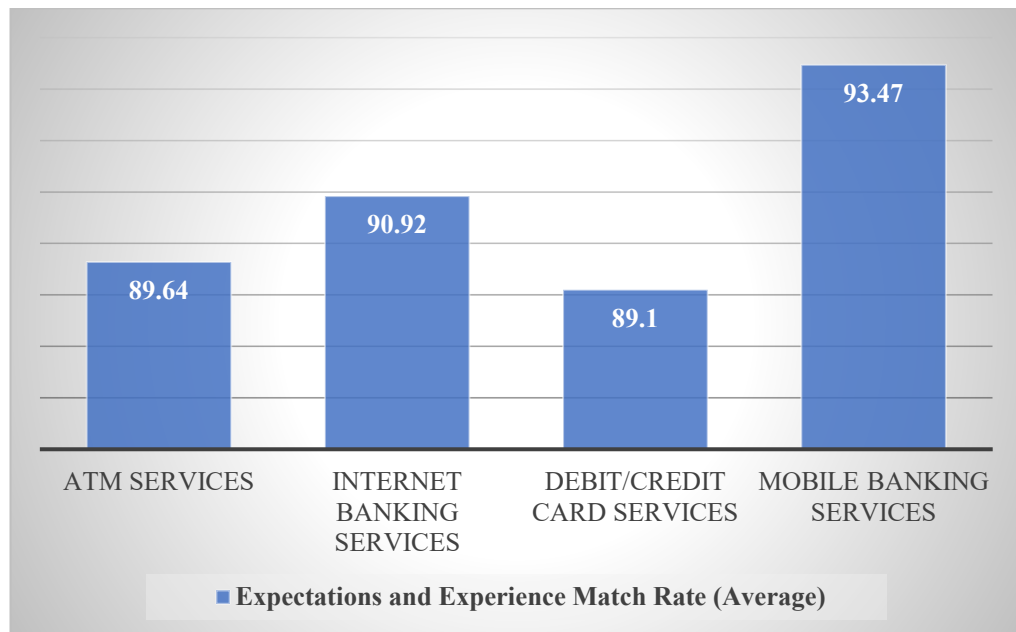
Table 3.23: Analysis of Respondents' Perception of Mobile Banking Services

PARAMETER	Percentage of Respondents (%)			Expectation & Experience Match Rate (%)	PERCEPTION
	1	2	3		
Reliability	4.1	57.6	38.3	95.9	POSITIVE
Cost- effectiveness	8.8	61.1	30.1	91.2	POSITIVE
Convenience	4.1	51.2	44.7	95.9	POSITIVE
Security	9.3	58.8	31.9	90.7	POSITIVE
Efficiency	5.3	53.2	41.5	94.7	POSITIVE
Fulfilment	5.2	51.2	43.6	94.8	POSITIVE
Understandability	7.1	59.9	33.0	92.9	POSITIVE
Assurance	8.5	61.1	30.4	91.5	POSITIVE
Ease of accessibility	7.6	57.3	35.1	92.4	POSITIVE
Speed of processing	6.2	57.0	36.8	93.8	POSITIVE
Responsiveness	5.0	62.3	32.7	95	POSITIVE
Quality of service	6.2	55.8	38.0	93.8	POSITIVE
Time-saving	7.4	54.5	38.1	92.6	POSITIVE

Source: Primary Data

The perception of mobile banking services is the most positive, wherein all the 13 service quality parameters used had registered at least a minimum of 90% match rate between expectation and experience among the respondents. This implies that e-banking users in the state of Nagaland have a high positive perception about the service and that mobile banking services are able to consistently deliver in terms of catering to the needs and demands of the customers, thereby consistently being able to meet the expected standards of the bank customers.

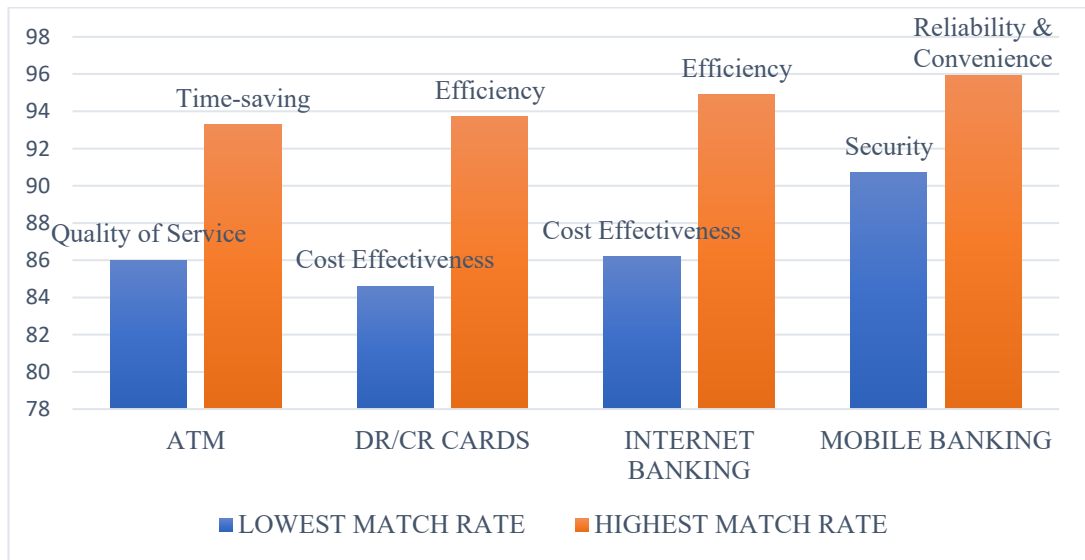
Chart 3.7: Average Match-Rate Between Customers' Expectation and Experience for Each Major E-Banking Service Category



Source: Primary Data

A comprehensive analysis of the four major e-banking service categories indicates that all have achieved an average match-rate of over 80% between customers' expectations and their actual experiences. While a generally positive perception exists across all categories, some variation in the degree of perception was observed. ATM services and debit/credit card services, although exceeding the 80% threshold, have average match-rates below 90%, with debit/credit cards showing the lowest rate. This suggests that certain features of these services still fall short of customers' expectations. In contrast, internet banking and mobile banking demonstrate significantly higher match-rates, both above 90%, with mobile banking achieving the highest alignment between expectations and experiences, reflecting its effectiveness in meeting customer standards.

Chart 3.8: Parameters with Lowest and Highest Match-Rate Between Customers' Expectation and Experience for Each Major E-Banking Service Category



Source: Primary Data

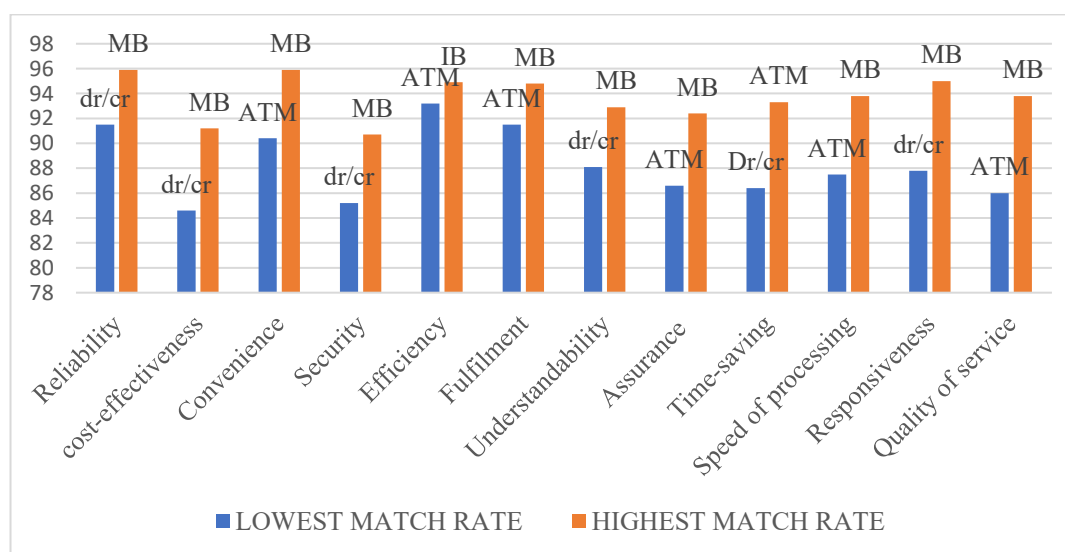
For the present study, 13 different service parameters were used for each major e-banking service category in order to analyse the nature of perception of the respondents for these services. The results revealed differences in perception for all major e-banking service categories; moreover, the perception for each parameter was also different in each case. Although the overall indication was that there exists widespread positive perception of e-banking services in Nagaland, the varying degrees of match-rate between the respondents' experience of using e-banking services as compared to their expectations in respect of each parameter provided good insight into understanding which features and aspects of a particular e-banking service is perceived in a more positive manner than the others. In this regard, it was found that parameters such as time-saving element, efficiency, reliability and convenience played a major role in generating a higher positive perception of e-banking services. Meanwhile, the data showed a lower degree of positive perception for parameters like quality of services, cost effectiveness and security aspects of e-banking.

For ATM services, the time-saving parameter and quality of service parameter registered the highest and lowest match rate, respectively. For debit/credit card

services and internet banking services, the results produced were quite similar in the sense that for both service categories, cost-effectiveness had the least degree of positive perception, whereas efficiency parameter registered the highest degree of positive perception. Lastly, with mobile banking services, the results revealed that both reliability and convenience parameters registered the highest degree of positive perception. However, the security parameter under the mobile banking category displayed the lowest degree of positive perception for this category.

Therefore, banks can take a closer look at these aspects to understand the nature and type of expectations that their customers have, so that they can implement the necessary changes and updates, which will reduce the gap between their expectations and experiences more effectively.

Chart 3.9: Parameter-Wise Highest and Lowest Expectation and Experience Match-Rate Across all Major E-Banking Service Categories



Source: Primary Data

Chart 3.9 gives a clear representation of the e-banking service categories that are performing better in terms of being able to meet the bank customer's expectations more effectively. The data revealed that for each parameter, the lowest degrees of positive perceptions were registered for ATM and debit/credit card service categories. Urgent measures are needed to improve the service delivery issues, especially for

better coping with the customers' expectations of these services, with regard to parameters such as reliability, cost-effectiveness, security, understandability, time-saving and responsiveness for debit/credit card services and convenience, efficiency, fulfilment, assurance, speed of processing and quality of service for ATM services.

On the other hand, the mobile banking service category is found to have the best results in terms of being able to successfully meet the customers' expectations. There is an overall higher degree of positive perception for mobile banking services as compared to the others. Except for the efficiency parameter, where internet banking service registers the highest degree of positive perception and the time-saving parameter, where ATM tops positive perception level, mobile banking service category came out as the best performer in terms of attaining the best positive perception for all the remaining 12 service parameters.

3.4.3 Analysis of customers' perception of e-banking services: An indication for growth and prospects

In the present study, several questions were also included in the questionnaire to collect primary data regarding customers' perceived quality, value and usefulness of e-banking services, to analyse the possibilities and likelihood of continued growth and stability of the e-banking services. The analysis in this regard is presented in Table 3.24.

Table 3.24: Analysis of Respondents' Perceived Quality, Perceived Value and Perceived Usefulness of E-Banking Services

Question	Percentage of Respondents (%)		
	YES	MAYBE	NO
1. Will you continue using e-banking services in the foreseeable future?	84.9	13.9	1.2
2. Will you recommend e-banking services to others?	81.2	16.8	2.0
3. Are you willing to try new e-banking services?	53.9	32.5	13.6
4. Are you willing to use e-banking services for new purposes?	51.2	41	7.8

5. Have you benefitted from the use of e-banking services?	86.4	10.7	2.9
6. Will you open new bank account in a bank that doesn't offer e-banking services?	6.1	14.8	79.1
7. Do you think e-banking services should improve?	55.4	42.3	2.3

Source: Primary Data

From the primary data presented in Table 3.24, it is clear that the vast majority (84.9%) of the existing e-banking users will continue to use the services even in the future, and another 81.2% stated that they will recommend the services to other people. This data is highly indicative of successful customer retention levels at present and also establishes the positivity in the expected growth rate of e-banking users in the future.

Again, 53.9% of the respondents expressed willingness to try or attempt to use new e-banking services, while another 51.2% expressed their willingness to use e-banking services for new purposes (i.e., purposes other than those for which they presently use e-banking services). This signifies that many bank customers are now more open to exploring the different possibilities and facilities available under e-banking services. Readiness to try new things is indicative of positive perception and a high perceived value and usefulness of e-banking services.

86.4% of the respondents admitted to having benefited in some manner from the use of e-banking services. This means that the e-banking services can satisfy the needs of the users to a significant degree and can deliver their intended use satisfactorily. Further, 79.1% of the respondents have indicated that they will not open new bank accounts in those banks that do not offer e-banking services. This shows that most of the present bank customers have a highly positive perception of the e-banking services and are no longer interested in reverting to the traditional system of banking practices.

The data analysis also shows that 55.4% of the respondents felt that e-banking services can still improve. This finding can be interpreted as the desire for e-banking users to see improvements in the system, such that persistent problems being faced

presently can be resolved in due time. This desire for improvement can be an indication that customers intend to use the services in the long run.

All of these instances offer a strong indication that the perceived quality, value and usefulness of e-banking services are very high among the present bank customers. As such, there is ample scope for significant progress and growth to be seen in the e-banking sector in the future.

CHAPTER IV

ANALYSIS OF CUSTOMERS' PREFERENCES AND SATISFACTION OF E-BANKING SERVICES

4.1 Introduction

The focus of the present chapter is on the analysis of customers' preferences and satisfaction towards e-banking services in Nagaland. It offers insight into the popularity of e-banking and its stance in comparison with traditional banking, while also offering relevant information about the satisfaction levels of different e-banking services. The chapter was structured in alignment with the third objective of the present study.

4.2 The Concept of Preference

The term *preference* refers to a stronger inclination or liking for one option over the other. *Conceptually, it involves the availability of having choices and making a choice among the different alternatives* (Kotler & Keller, 2016)⁴¹. Preference is an individualistic tendency and differs from person to person; however, one's preferences can be and are often influenced by a variety of external factors as well as group influences.

The state of having a preference for certain things plays a significant role in the individual's decision-making process, as it serves to offer crucial information and incentive for deciding what the individual values most (Solomon, 2020)⁴².

⁴¹ Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education.

⁴² Solomon, M. R. (2020). *Consumer behaviour: Buying, having, and being* (13th ed.). Pearson.

In the context of consumer behaviour analysis, a sound knowledge of the customers' preferences can have substantial impact in navigating the complex market situations and gaining a clearer understanding of the customers' needs and wants.

Owing to its significance in optimizing sales, customer experiences, customer satisfaction and managerial efficiency, there is a mounting need to analyse and evaluate customers' preferences for various product/service offerings to maintain consistency in delivering positive results.

In the context of the e-banking sector, where there exists a tremendous range of service offerings, the critical examination of customers' preferences should be a priority. *There is a constant need to routinely collect data and analyse the nature of customers' preferences for the different e-banking services, as this will offer important information on how to improve the overall customer experience and satisfaction while also contributing relevant information towards developing measures and strategies to cope with the market demands and changes in the market environment* (Laukkanen, 2017)⁴³. Furthermore, *such analysis assists in formulating strategies to adapt to evolving market demands and dynamic technological environments* (Zhou et al., 2021)⁴⁴.

4.3 Analysis of Customers' Preferences of E-Banking Services

Based on the primary data collected, Table 4.1 given below, presents the respondents' preferences of different e-banking services for undertaking various personal banking-related activities. The data highlights a prominent inclination towards mobile banking services, reflecting a growing preference for digitalised banking systems, particularly those offered through mobile platforms.

⁴³Laukkanen, T. (2017). Customer perceived value of internet banking in Finland. *International Journal of Retail & Distribution Management*, 45(9), 1016–1031.

⁴⁴Zhou, T. et al. (2021). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behaviour*, 26(4), 760-767.

Table 4.1: Respondents' Preferences of E-Banking Services for Undertaking Specific Activities

Activity	Percentage of Respondents (%)					
	ATM	Internet Banking	Debit/Credit Cards	Mobile Banking	Visit to Bank Branch	Using Cash
Preferred mode for transferring funds to others	11.9	19.5	2.9	48.5	7.0	10.2
Preferred mode for paying utility bills	1.4	15.9	5.5	46.5	1.4	29.2
Preferred payment mode for offline shopping	3.2	3.2	8.4	12.7	0.6	72.0
Preferred payment mode for online shopping	2.3	15.9	19.7	47.0	3.0	14.8
Preferred facility to track banking activities	1.7	21.2	2.0	58.3	13.3	3.5
Preferred mode for mobile/DTH recharge	1.2	20.6	5.8	62.0	0.9	9.6
Preferred facility for booking/buying train, flight, hotel/movie tickets	0.6	23.3	7.6	49.3	0.9	18.4
Preferred facility to apply/pay for loans	0.9	12.5	1.7	21.8	47.7	15.4
Preferred facility to apply/pay for insurance	1.7	10.2	1.5	23.0	46.8	16.9
Preferred facility for investment-related activities	1.2	10.8	0.9	24.4	45.1	17.7

Source: Primary Data

For transferring funds, the most preferred channel is mobile banking (48.5%), followed by internet banking (19.5%), showing a significant gap of nearly 29%. This strongly suggests that customers perceive mobile banking as the most convenient and accessible channel for fund transfers. In contrast, the least preferred mode is debit/credit cards (2.9%), likely because there is no direct means of transferring funds through this channel, as it requires the user to take additional steps through other platforms. The use of ATMs (11.9%) and physical branch visits (7%) is also relatively low, possibly due to the increasing convenience of conducting such transactions digitally. Interestingly, 10.2% of respondents still prefer to transfer funds in cash, indicating that a small portion of customers continue to rely on traditional, physical modes of transaction.

When it comes to paying utility bills, mobile banking remains the most preferred channel (46.5%), followed by cash payments (29.2%). The high usage of mobile banking can be attributed to the availability of in-built utility bill payment features on mobile banking apps, which offer users a hassle-free experience. However, the considerable percentage opting for cash payments also suggests the existence of a lingering lack of trust in digital systems or concerns regarding transaction security and reliability when using other e-banking platforms like internet banking or cards.

In the case of offline shopping, a significant 72% of respondents prefer using cash, which could be attributed to challenges such as limited digital payment infrastructure, lack of POS terminals, poor network connectivity, and high occurrence of transaction failures. On the other hand, for online shopping, the scenario reverses as 84.9% of the respondents use e-banking channels, with mobile banking (47%) being the top choice, followed by debit/credit cards (19.7%) and internet banking (15.9%). Only 14.8% still opt for cash-on-delivery, indicating a strong shift toward digital payment channels in online commerce.

With regard to tracking banking activities, the majority of customers rely on mobile banking (58.3%) and internet banking (21.2%). This shows that customers increasingly prefer real-time, remote access to their account information over traditional methods. Only 13.3% of respondents prefer visiting bank branches for this purpose, suggesting a clear transition toward self-service banking enabled by digital platforms.

A similar trend is observed in the case of mobile/DTH recharges, where mobile banking dominates (62%) as the preferred mode. Only 9.6% of respondents prefer cash for this purpose, highlighting the ease and speed of digital payment solutions in daily transactions. Likewise, for booking and purchasing tickets (train, flight, hotel, or movie), mobile banking is again the top preference (49.3%), while only 18.4% prefer using cash, demonstrating a rising trust in digital payments for service bookings.

However, a contrasting trend emerges for loan applications, insurance, and investment-related activities. In these categories, the majority of respondents prefer visiting bank branches (47.7%) for loans, 46.8% for insurance, and 45.1% for

investment services. This suggests that when it comes to complex or high-value transactions, customers still seek personal interactions and assurance from bank personnel. Digital channels such as debit/credit cards and ATMs remain the least preferred. However, it is worth noting that around 20-24% of respondents are already using mobile banking services for such activities. This indicates a potential for future growth in digital adoption for more sophisticated banking services as users become more familiar and comfortable with mobile banking features.

4.4 Understanding Preference as a Ranking Activity

The conceptual framework of preference as a tool to decode consumer behaviour also underscores the significance of establishing a valid ranking system. Such a system reflects an individual's perceived value of the available products or services. In this context, the higher the perceived value of a product or service, the higher its placement in the ranking order. Conversely, lower perceived value results in a lower rank.

Ranking, therefore, becomes a deliberate and conscious activity undertaken by consumers to associate relative desirability and utility to each option available to them. This process facilitates more structured and rational decision-making, especially in circumstances where multiple alternatives are available. Ultimately, it helps customers arrive at final decisions regarding the use or purchase of specific products or services.

In the context of the present study, respondents were provided with a list of major banking services, including key categories of e-banking services. They were then asked to rank these services based on their overall preferences concerning regular banking activities. The findings derived from this ranking exercise are compiled and presented in Table 4.2.

Table 4.2: Ranking of Respondents' Preferences of Banking Services

Banking Services	Percentage of Respondents (rank-wise)					
	1	2	3	4	5	6
Mobile Banking	58.8	20.6	9.0	5.2	4.9	1.4
Internet Banking	14.8	37.7	18.3	15.4	7.0	7.0
ATM	17.1	20.3	35.4	22.3	4.1	0.9
Debit/Credit Cards	4.9	15.9	25.2	37.1	9.0	7.8

Cheques	2.0	2.6	5.5	13.0	56.8	20.0
Visit to Bank Branch	2.9	3.2	6.1	7.2	18.0	62.6

Source: Primary Data

The primary data collected indicate that bank customers in Nagaland exhibit a strong preference for mobile banking services. Among all service categories, mobile banking received the highest first-rank preference from 58.8% of the respondents. An additional 20.6% ranked mobile banking as their second preference, while only 1.4% considered it their least preferred mode of banking. This overwhelming preference underscores the growing popularity and trust in mobile-based digital banking platforms in the state.

Among the various banking services, e-banking categories consistently outperformed traditional methods. Following mobile banking, internet banking was ranked highest by 14.8% of respondents and was most frequently placed in the second position (37.7%). ATM services were predominantly placed in the third rank by 35.4% of the respondents, while debit/credit cards received the fourth-highest overall preference, with 25.2% ranking them third and 37.1% assigning them fourth place.

It is noteworthy that ATM services recorded the lowest percentage (0.9%) of respondents who ranked them as their last preference, indicating that although not the top choice, ATMs remain a relevant and moderately valued service.

In contrast, cheque usage ranked very low in preference across all ranks, with 56.8% of respondents placing it in the second-last position (Rank 5) and 20% ranking it last. Similarly, visiting bank branches was the least preferred mode of banking, with 62.6% of the respondents ranking it sixth (last) and only 2.9% giving it the top rank. This clear shift away from traditional banking methods, such as physical visits and cheque usage, suggests a transition in consumer behaviour towards more convenient, digital-first banking services.

Overall, the data reflect a positive environment for the growth and acceptance of e-banking services in Nagaland. The strong preference for mobile and internet banking, coupled with the declining importance of traditional banking methods,

signals a progressive adoption of technology-driven financial services among customers in the state.

Table 4.3: Respondents' Preferred Mode for Making Payments

Rank	Particulars	Percentage of Respondents (%)
1	Mobile Banking	61.6
2	Cash	19.6
3	Internet Banking	12
4	Debit/Credit Cards	5.9
5	Others	0.9

Source: Primary Data

The data in Table 4.3 highlights that mobile banking is the most preferred mode for making payments among banking customers in Nagaland, with 61.6% of respondents ranking it as their top choice. This further reinforces the trend observed in earlier tables, where mobile banking consistently emerged as the most favoured e-banking channel.

Cash payments remain the second most preferred mode at 19.6%, suggesting that while digital payment modes are gaining ground, a significant portion of the population still relies on traditional cash-based transactions. This could be due to factors such as habit, limited access to digital infrastructure, or preference for tangible transactions.

Internet banking ranks third (12%), indicating moderate usage, likely for bill payments and fund transfers, particularly among more digitally literate users. Debit/credit cards are relatively less favoured at 5.9%, possibly due to infrastructure issues such as the unavailability of card payment options in many local businesses, especially in rural areas.

Lastly, only 0.9% of respondents selected 'Others' (which may include USSD, AePS or cheque payments), suggesting that such alternatives have yet to achieve substantial penetration or preference in the region.

Overall, the data signifies a strong consumer shift toward mobile-based payment platforms, while traditional methods like cash still hold relevance. This dual

trend points to an evolving but transitional stage in the payment behaviour of banking customers in Nagaland.

Table 4.4: Respondents' Preferred Mode for Receiving Funds

Rank	Particulars	Percentage of Respondents (%)
1	Bank Transfer	79.3
2	Cash	17.5
3	Cheques	0.3
4	Others	2.9

Source: Primary Data

When it came to receiving funds, the data from Table 4.4 reveal that nearly 80% of the respondents preferred to get paid through bank transfers (e-banking) as opposed to the use of cash (17.5%) and a minimal (0.3%) number who use cheques or other modes of payment (2.9%). This data reveals that there exists, among bank customers in Nagaland, an obvious preference for online transfers that are directly credited to their personal bank accounts.

This highlights a strong preference among banking customers in Nagaland for digital fund transfers, where payments are credited directly to their personal bank accounts. The convenience, speed, and reliability associated with online transfers likely contribute to this preference, reflecting a growing trust in digital financial infrastructure and a significant move away from conventional payment systems.

4.5 The Concept of Satisfaction

Customer satisfaction refers to the fulfilment of a customer's desires, expectations, or needs, and the positive emotional response that follows when such fulfilment is achieved. It is essentially the contentment or gratification derived from acquiring or experiencing something that meets one's expectations or solves a particular need. Conceptually, customer satisfaction denotes the degree to which a customer feels happy or fulfilled with a product or service, based on how well their expectations align with their actual experiences.

Satisfaction is inherently subjective and varies from individual to individual. It is an abstract concept, influenced by the personal perceptions formed through the interaction between expectations and real-life experiences. In the commercial domain, achieving high levels of customer satisfaction is regarded as one of the core objectives of any business organization, as it directly impacts customer loyalty, retention, and long-term profitability.

To monitor and improve customer satisfaction, businesses often conduct Customer Satisfaction (CSAT) surveys regularly. These surveys help maintain up-to-date insights into how customers perceive the quality and performance of products and services offered. The results enable businesses to identify areas requiring improvement, implement necessary changes, and align offerings more closely with customer expectations.

These surveys typically employ a Likert Scale, ranging from 1 to 5 or 1 to 10, where 1 denotes 'very dissatisfied' and 5 or 10 denotes 'very satisfied'. Customers are invited to rate their satisfaction based on their actual usage experience. Ratings of 4 or 5 on a 5-point scale are generally interpreted as positive or satisfied responses. According to industry benchmarks, if 80% or more of the respondents fall within this 'satisfied' category, the service or product is considered to have achieved a high satisfaction level.

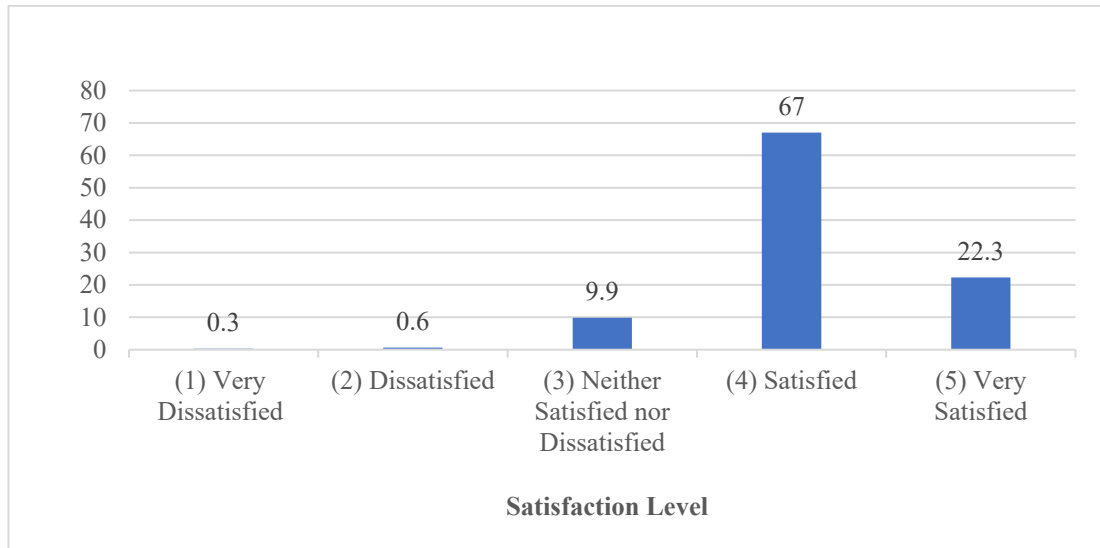
In the present study, this principle has been applied to assess the level of customer satisfaction with e-banking services in Nagaland. The following segment presents the analysis and findings based on primary data collected from the respondents.

4.6 Analysis of Satisfaction Levels of E-Banking Services

The primary data to measure satisfaction levels was collected using a 5-point Likert scale where 1= very dissatisfied, 2= dissatisfied, 3= neither satisfied nor dissatisfied, 4= satisfied and 5= very satisfied. The data was then compiled and analysed to present the following charts and tables in order to present the satisfaction

levels of various e-banking services in the state of Nagaland. Statistical tests were also employed to test the data regarding satisfaction levels for e-banking services.

Chart 4.1: Respondents' Satisfaction Level of E-Banking Services



Source: Primary Data

Chart 4.1 above presents the levels of satisfaction among respondents regarding their overall experience with e-banking services in general. The data shows a highly positive customer perception of e-banking services in Nagaland: A majority of 67% of the respondents reported being 'satisfied' with the services. 22.3% of the respondents indicated they were 'very satisfied'. 9.9% remained neutral, suggesting that while they had no significant complaints, their expectations may not have been fully met. A minimal 0.6% reported being 'dissatisfied', and only 0.3% were very dissatisfied.

In total, 89.3% of the respondents (satisfied + very Satisfied) expressed a positive experience with e-banking services. This level of satisfaction surpasses the industry benchmark of 80%, indicating high customer satisfaction in the region.

The data clearly indicates that the e-banking systems in Nagaland are functioning efficiently and effectively from the customers' point of view. Banks can leverage this insight to maintain the current quality of services while also addressing the concerns of the small segment of users who are neutral or dissatisfied.

4.6.1 Testing of Hypothesis II (H2)

Hypothesis II (H2): There is a high level of satisfaction with e-banking services in Nagaland.

The following Null Hypothesis and Alternative Hypothesis were constructed to test the validity of Hypothesis II (H2) using One Proportion Z-Test.

(H₀): The level of satisfaction with e-banking services in Nagaland is equal to the threshold level of 80% (P=0.80)

(H₂): The level of satisfaction with e-banking services in Nagaland is greater than the threshold level of 80% (P>0.80), i.e., high satisfaction.

The test statistic is:

$$Z = \frac{p-P}{\sqrt{\frac{PQ}{n}}} \sim N(0,1)$$

Where, n = sample size

$$p = \text{sample proportion} = \frac{x}{n}$$

x = number of success or number of individuals satisfied of e-banking services

P = assumed population proportion (threshold)

$$Q = 1 - P$$

We have,

$$\begin{aligned}\therefore Z &= \frac{0.89 - 0.8}{\sqrt{\frac{0.8 \times 0.2}{400}}} \\ &= \frac{0.09}{\sqrt{\frac{0.16}{400}}} \\ &= \frac{0.09}{\sqrt{0.0004}} \\ &= \frac{0.09}{0.02} \\ &= 4.5\end{aligned}$$

$$\begin{aligned}(p &= 67\% + 22.3\% \\ &= 89.3\% \text{ or } 0.89)\end{aligned}$$

Tabulated Z value at 5% level of significance = 1.645

Since the calculated Z value (i.e., 4.5) is greater than the tabulated value (1.645), the null hypothesis is rejected. The test provides statistically significant evidence to conclude that the level of satisfaction with e-banking services in Nagaland exceeds the threshold level of 80%, thereby validating Hypothesis II (H2). Hence, it is established that there is high level of satisfaction for e-banking services in Nagaland.

4.6.2 Analysis of satisfaction levels of major e-banking service categories

To gain deeper insights into customer satisfaction with e-banking services in Nagaland, the study focused on four major e-banking service categories: ATM services, internet banking services, debit/credit card services and mobile banking services. within each category, 13 key service quality parameters were identified. Respondents were asked to rate their level of satisfaction on each parameter using a 5-point Likert scale, where 1- very dissatisfied, 2- dissatisfied, 3- neither satisfied nor dissatisfied, 4- satisfied and 5- very satisfied. The survey results for ATM services are presented in the table below.

Table 4.5: Satisfaction Levels of ATM Services

Parameter	Percentage of Respondents				
	1	2	3	4	5
Reliability	2.6	1.4	11.0	57.4	27.5
Cost-Effectiveness	2.6	8.7	21.4	45.2	22.0
Convenience	1.2	2.6	8.1	57.4	30.7
Security	1.2	3.8	22.6	47.0	25.5
Efficiency	0.6	0.9	15.4	58.6	24.6
Fulfilment	1.2	1.4	11.3	60.3	25.8
Understandability	0.9	2.6	11.6	60.9	24.1
Assurance	1.2	5.8	25.1	43.4	24.5
Accessibility	2.9	15.1	24.7	39.0	18.3
Time-saving	1.2	3.8	18.9	48.5	27.6
Speed of Processing	2.0	4.1	21.9	48.4	23.6
Responsiveness	2.6	12.2	34.6	37.8	12.8
Quality of Service	1.7	5.5	26.7	49.6	16.5

Source: Primary Data

In Table 4.5, the primary data collected on the satisfaction levels of respondents concerning ATM services in Nagaland are presented. The findings reveal that a significant majority of respondents expressed satisfaction with the ATM services offered in the state.

Among the 13 service quality parameters assessed, the ‘Convenience’ of ATM services emerged as the most positively rated feature, with 57.4% of respondents indicating they were ‘satisfied’, and an additional 30.7% stating they were ‘highly satisfied’. This suggests that ATM services are perceived as accessible and user-friendly by most users.

On the other hand, the ‘Responsiveness’ parameter received the lowest satisfaction rating among all attributes. Only 37.8% of the respondents reported being ‘satisfied’, and a mere 12.8% indicated they were ‘highly satisfied’ with the responsiveness of ATM services. Notably, 34.6% of respondents maintained a neutral stance, indicating either indifference or uncertainty regarding the promptness and helpfulness of service responses in ATM-related issues.

Overall, while the findings highlight a generally positive perception of ATM services in terms of convenience, efficiency, and reliability, they also point to specific areas, particularly responsiveness, that call for further attention and improvement by banking institutions operating in the state.

Table 4.6: Satisfaction Mean Scores of ATM Services

Parameter	Mean	Std. Deviation
Reliability	4.06	.823
Cost-effectiveness	3.75	.980
Convenience	4.14	.761
Security	3.92	.855
Efficiency	4.06	.696
Fulfilment	4.08	.727
Understandability	4.05	.734
Assurance	3.84	.901
Ease of accessibility	3.55	1.046

Time saving	3.98	.850
Speed of Processing	3.88	.888
Responsiveness	3.46	.953
Quality of Service	3.74	.861
WEIGHTED MEAN	3.88	

Source: Primary Data

Table 4.6 presents the mean satisfaction scores and standard deviations for various parameters of ATM services, based on a 5-point Likert scale. The overall weighted mean satisfaction score for ATM services is calculated at 3.88, indicating that, on average, respondents were generally satisfied with the quality of ATM services available in Nagaland.

Among the 13 service quality parameters, ‘convenience’ registered the highest mean score of 4.14 (SD=0.761), reinforcing the earlier observation in Table 4.5 that respondents find ATM services to be easily accessible and user-friendly. Other parameters with relatively high satisfaction include ‘fulfilment’ (4.08), ‘efficiency’ (4.06), ‘reliability’ (4.06), and ‘understandability’ (4.05), all exceeding the 4.00 mark, suggesting that these aspects of ATM services are meeting customer expectations well. On the contrary, ‘responsiveness’ recorded the lowest mean score at 3.46 (SD= 0.953), reflecting a relatively lower level of satisfaction in how promptly and effectively ATM-related issues or queries are addressed. This aligns with the earlier frequency-based findings, where responsiveness also scored the lowest in terms of percentage satisfaction.

Particularly, ‘ease of accessibility’ also showed a relatively lower mean of 3.55, along with a higher standard deviation (1.046), indicating more divergent opinions among respondents regarding how easily they can physically or digitally access ATM services.

Overall, the data shows that while customers are largely satisfied with ATM services across several key parameters, improvements are particularly needed in the areas of responsiveness and accessibility to further enhance user experience and trust.

Table 4.7: Satisfaction Levels of Internet Banking Services

Parameter	Percentage of Respondents				
	1	2	3	4	5
Reliability	2.1	1.8	16.0	54.0	26.1
Cost-Effectiveness	1.5	6.8	31.0	46.1	14.6
Convenience	0.9	2.4	13.6	57.6	25.5
Security	0.9	4.5	30.0	44.5	20.2
Efficiency	0.9	0.6	17.5	56.1	24.9
Fulfilment	1.2	2.4	15.1	55.2	26.1
Understandability	2.1	3.9	21.3	59.6	13.2
Assurance	0.9	4.5	32.6	49.1	12.9
Accessibility	1.8	6.0	26.6	48.8	16.8
Time-saving	1.5	1.2	12.7	58.4	26.2
Speed of Processing	1.5	1.2	18.3	59.8	19.2
Responsiveness	2.1	5.7	34.1	46.7	11.4
Quality of Service	1.5	1.8	25.1	57.2	14.4

Source: Primary Data

Table 4.7 presents the distribution of respondents' satisfaction levels across thirteen parameters related to Internet banking services in Nagaland. The findings suggest a generally positive perception among users, with most respondents reporting satisfaction (ratings of 4 and 5 on the Likert scale) across various service quality indicators.

The parameter 'Convenience' recorded the highest satisfaction, with 57.6% of respondents indicating they were 'satisfied' and 25.5% reporting they were 'highly satisfied'. This reflects the broad user appreciation of Internet banking's ease of use and accessibility at their convenience.

Similarly, high levels of satisfaction were noted under 'time-saving' (84.6% combining satisfied and highly satisfied), 'efficiency' (81.0%), and 'Speed of Processing' (79.0%), confirming the service's effectiveness in reducing transaction time and effort.

On the other hand, 'responsiveness' received the lowest positive ratings, with only 46.7% expressing satisfaction and a mere 11.4% stating high satisfaction. A

relatively high 34.1% maintained a neutral stance, suggesting that many customers are undecided or cautiously optimistic about the responsiveness of online banking services to customer needs or grievances.

Other parameters like ‘assurance’ (61.9% satisfied/highly satisfied) and ‘security’ (64.7%) registered moderate satisfaction levels, indicating areas where customer confidence could be improved further through transparency, timely service delivery, and better grievance redressal mechanisms.

Overall, the survey data reveal that most users are satisfied with the Internet banking services provided by banks in Nagaland, especially in terms of speed, convenience, and efficiency. However, responsiveness and assurance continue to be areas that require attention from service providers to boost customer trust and enhance user experience.

Table 4.8: Satisfaction Mean Scores of Internet Banking Services

Parameter	Mean	Std. Deviation
Reliability	4.00	.826
Cost-effectiveness	3.65	.864
Convenience	4.04	.753
Security	3.79	.846
Efficiency	4.04	.727
Fulfilment	4.03	.784
Understandability	3.78	.801
Assurance	3.69	.787
Ease of accessibility	3.73	.874
Time saving	4.07	.755
Speed of Processing	3.94	.746
Responsiveness	3.60	.843
Quality of Service	3.81	.754
Weighted Mean	3.86	

Source: Primary Data

In Table 4.8, the mean satisfaction scores of the respondents for various parameters of Internet banking services are presented. The overall analysis confirms

that customers in Nagaland exhibit a moderate to high level of satisfaction with Internet banking facilities offered by banks.

Among the parameters, ‘time-saving’ recorded the highest mean score at 4.07, followed closely by ‘efficiency’ (4.04), ‘convenience’ (4.04), and ‘fulfilment’ (4.03). These results highlight the respondents’ strong appreciation for the practical benefits of Internet banking in terms of speed, ease of use, and service delivery.

In contrast, ‘responsiveness’ received the lowest mean score of 3.60, reflecting some degree of dissatisfaction or perceived delay in service response. Similarly, ‘cost-effectiveness’ (3.65) and ‘assurance’ (3.69) also scored on the lower end, suggesting that users may still harbour concerns about value for money and trust in the system.

Despite these variations, the overall weighted mean was calculated at 3.86, which indicates that the respondents are generally satisfied with their Internet banking experience. The relatively low standard deviations across parameters further suggest that the responses were consistent among the sampled population.

Table 4.9: Satisfaction Levels of Debit/Credit Card Services

Parameter	Percentage of Respondents				
	1	2	3	4	5
Reliability	1.5	3.6	12.5	65.8	16.7
Cost-Effectiveness	5.7	6.5	27.1	49.4	11.3
Convenience	2.1	0.9	14.6	65.8	16.7
Security	1.5	5.7	19.3	57.1	16.4
Efficiency	1.5	0.3	16.7	64.6	17.0
Fulfilment	1.2	0.9	12.2	66.1	19.6
Understandability	1.2	3.3	14.3	66.9	14.3
Assurance	1.8	5.4	22.6	52.7	17.6
Accessibility	1.8	9.2	24.4	50.3	14.3
Time-saving	1.2	3.0	18.5	58.3	19.0
Speed of Processing	1.8	1.5	24.1	57.1	15.5
Responsiveness	2.4	6.3	38.7	42.0	10.7
Quality of Service	2.1	2.7	24.2	56.7	14.3

Source: Primary Data

Table 4.9 presents the satisfaction levels of respondents regarding various parameters of debit/credit card services. The data reflects that a significant proportion of users express positive satisfaction, particularly on aspects related to reliability, convenience, and fulfilment.

Among the parameters, the ‘fulfilment’ feature emerged as the highest-rated by respondents, with 66.1% indicating they are satisfied, and 19.6% reporting being highly satisfied. This is followed closely by ‘convenience’, where 65.8% of users expressed satisfaction, and 16.7% were highly satisfied, indicating the strong usability and ease-of-use of card services.

Likewise, ‘efficiency’ (64.6% satisfied and 17.0% highly satisfied) and ‘reliability’ (65.8% satisfied and 16.7% highly satisfied) also garnered favourable responses, underscoring the perceived operational dependability of debit/credit cards in the state.

However, similar to the trend observed in ATM and Internet banking services, ‘responsiveness’ scored the lowest satisfaction levels, with only 42.0% satisfied and 10.7% highly satisfied, while a significant 38.7% opted for a neutral response. Additionally, ‘cost-effectiveness’ and ‘accessibility’ also reflected moderate satisfaction levels, suggesting room for improvement in these areas.

Overall, the data reveals a generally high level of satisfaction among the respondents regarding debit/credit card services, though improvements in customer responsiveness and perceived cost value could enhance service quality further.

Table 4.10: Satisfaction Mean Scores of Debit/Credit Card Services

Parameter	Mean	Std. Deviation
Reliability	3.93	.751
Cost-effectiveness	3.54	.973
Convenience	3.94	.731
Security	3.81	.827
Efficiency	3.95	.694
Fulfilment	4.02	.680
Understandability	3.90	.719

Assurance	3.79	.857
Eae of accessibility	3.66	.897
Time saving	3.91	.771
Speed of Processing	3.83	.767
Responsiveness	3.52	.857
Quality of Service	3.79	.798
Weighted Mean	3.81	

Source: Primary Data

Table 4.10 presents the mean satisfaction scores and standard deviations for various service quality parameters related to Debit/Credit Card services. The overall weighted mean score is 3.81, indicating a generally satisfactory experience among respondents.

Among the 13 service parameters, ‘fulfilment’ recorded the highest mean score of 4.02, with a low standard deviation (0.680), suggesting strong agreement among respondents on the effectiveness of services in meeting expectations. This is followed closely by ‘efficiency’ (3.95), ‘convenience’ (3.94), and ‘reliability’ (3.93), reinforcing that users find debit/credit cards dependable, easy to use, and efficient in their transactions. Parameters such as ‘understandability’ (3.90) and ‘time saving’ (3.91) also show relatively high mean values, indicating that users perceive the services as easy to comprehend and effective in reducing transactional time.

On the other hand, certain parameters received comparatively lower satisfaction scores. ‘Responsiveness’ (3.52) was the lowest rated, indicating user concerns with how promptly and effectively issues or queries are addressed. ‘Cost-effectiveness’ (3.54) and ‘ease of accessibility’ (3.66) also recorded relatively lower means, suggesting perceived limitations in value for money and ease of card usage or availability.

Despite the few lower-rated aspects, the standard deviations across parameters remain below 1, pointing to consistent opinions among respondents.

Table 4.11: Satisfaction Levels of Mobile Banking Services

Parameter	Percentage of Respondents				
	1	2	3	4	5
Reliability	0.9	0.6	9.1	54.8	34.6
Cost-Effectiveness	1.2	3.8	21.7	51.9	21.4
Convenience	0.6	0.9	9.7	55.1	33.7
Security	1.5	3.2	26.3	45.0	24.0
Efficiency	0.9	1.5	11.7	53.5	32.5
Fulfilment	0.9	0.6	8.2	53.5	36.8
Understandability	0.9	2.6	11.7	56.4	28.4
Assurance	1.2	2.9	22.9	47.6	25.3
Accessibility	1.2	6.7	17.6	49.9	24.6
Time-saving	0.9	1.2	5.6	56.7	35.7
Speed of Processing	1.2	2.6	11.7	57.9	26.6
Responsiveness	1.2	4.7	26.9	50.9	16.4
Quality of Service	0.9	2.6	16.4	58.7	21.4

Source: Primary Data

The primary data collected on satisfaction levels for mobile banking services showed the highest overall satisfaction ratings among the respondents across all four major e-banking service categories. Under mobile banking services, it is observed that the two parameters ‘fulfilment’ (53.5% satisfied and 36.8% very satisfied) and ‘time-saving’ (56.7% satisfied and 35.7% very satisfied) both registered the highest percentage of satisfied users (both parameters have the same mean score of 4.25 as indicated in the following Table 4.12). On the other hand, the ‘responsiveness’ parameter registered the lowest percentage of satisfied respondents, wherein 50.9% were satisfied, and another 16.4% showed that they were very satisfied with the service in this regard.

Across all parameters, the majority of respondents rated their experience in the higher satisfaction categories. Fulfilment and Time-saving were rated “Very Satisfied” by 36.8% and 35.7% of respondents, respectively. Parameters like reliability, convenience, and efficiency also had over 85% of respondents in the satisfied and very satisfied brackets. The lowest levels of satisfaction were observed for Responsiveness, where 26.9% of respondents rated it at the neutral level (3), and 4.7% rated it at level

2 (dissatisfied). This distribution indicates a strong satisfaction trend among mobile banking users, especially regarding transaction speed, convenience, and overall performance.

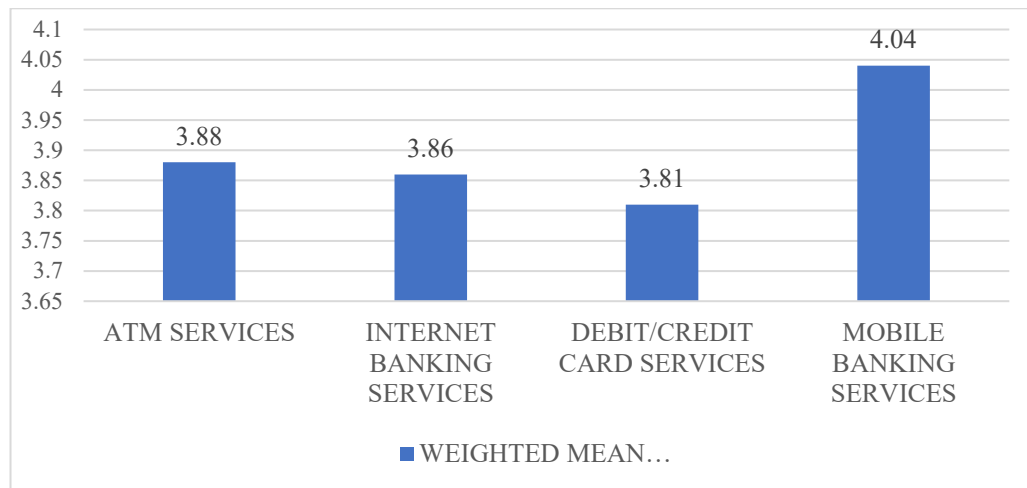
Table 4.12: Satisfaction Mean Scores of Mobile Banking Services

Parameter	Mean	Std. Deviation
Reliability	4.22	.703
Cost-effectiveness	3.89	.823
Convenience	4.21	.694
Security	3.87	.865
Efficiency	4.15	.747
Fulfilment	4.25	.702
Understandability	4.09	.761
Assurance	3.93	.838
Ease of accessibility	3.90	.889
Time saving	4.25	.690
Speed of Processing	4.06	.769
Responsiveness	3.77	.820
Quality of Service	3.97	.751
Weighted Mean	4.04	

Source: Primary Data

The satisfaction mean scores of mobile banking services indicate high satisfaction throughout. The mean scores were above 4, for 7 out of the 13 parameters used. This category also secured the highest weighted mean (4.04) among the four different e-banking service categories. The parameters ‘fulfilment’ and ‘time saving’ both registered 4.25 average scores, which are the highest individual scores among the parameters. Again, like the previous e-banking service categories, mobile banking’s ‘responsiveness’ parameter had the lowest mean score for satisfaction at 3.77.

Chart 4.2: Weighted Mean of Satisfaction Levels for Different E-Banking Service Categories



Source: Primary Data

Chart 4.2 presents a comparative overview of the weighted mean satisfaction scores for the major e-banking service categories based on a 5-point Likert scale. The findings indicate that: Mobile banking services received the highest weighted mean score of 4.04, making it the only e-banking service to surpass the 4.00 threshold. This reflects a very high level of user satisfaction, particularly in terms of convenience, efficiency, and fulfilment. Debit/Credit card services, on the other hand, recorded the lowest satisfaction mean score of 3.81, though still within the satisfied range, indicating that users generally appreciate the service but see room for improvement in certain areas, such as cost-effectiveness and responsiveness.

Although the differences in mean scores among the various e-banking services are not substantial, they do highlight varying degrees of user experience across platforms. Importantly, all service categories scored above 3.5, suggesting that overall satisfaction with e-banking services remains high.

This trend underscores a positive perception and growing acceptance of digital banking channels among users, with mobile banking emerging as the most preferred and satisfying platform.

4.6.3 Additional statistical tests conducted to determine the consistency of satisfaction levels of e-banking services within selected demographic factors

In addition to testing the Hypothesis II (H2), further statistical analyses were conducted to explore the consistency in satisfaction levels of e-banking services, across selected demographic variables such as gender, age, monthly income, and educational qualification. These tests help substantiate the findings related to customers' satisfaction of e-banking services in Nagaland.

Two non-parametric statistical methods were employed. Pearson's Chi-Square Test was employed to evaluate if there are significant differences in satisfaction levels based on gender, and an Independent Samples Kruskal-Wallis Test was used to assess differences in satisfaction levels across age groups, income levels, and educational qualifications.

The following additional hypotheses were framed for this purpose:

Hypothesis 7 (H₀₇): *There is no significant difference in satisfaction levels of e-banking services with respect to gender for:*

- ATM Services
- Internet Banking Services
- Debit/Credit Card Services
- Mobile Banking Services

(Parameters tested under each category: Reliability, Cost-Effectiveness, Convenience, Security, Efficiency, Fulfilment, Understandability, Assurance, Accessibility, Time-Saving, Speed of Processing, Responsiveness, and Quality of Service)

Hypothesis 8 (H₀₈): *There is no significant difference in satisfaction levels of e-banking services with respect to age for:*

(Same service categories and parameters as above)

Hypothesis 9 (H₀₉): *There is no significant difference in satisfaction levels of e-banking services with respect to the monthly income level for:*

(Same service categories and parameters as above)

Hypothesis 10 (H₁₀): *There is no significant difference in satisfaction levels of e-banking services with respect to educational qualification for:*

(Same service categories and parameters as above)

4.6.4 Results of Pearson's Chi-Square tests conducted

The results of the Pearson's Chi-Square tests conducted to assess the existence of statistically significant differences in satisfaction level for different e-banking service categories on the basis of gender, are summarized below from Table 4.13- 4.16.

Table 4.13: Pearson's Chi-Square Test Results of ATM Services Satisfaction Levels (Gender)

Parameter	χ^2	df	p-value	Decision
Reliability	3.693	4	0.849	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	2.087	4	0.605	$p > 0.05$, null hypothesis is accepted
Convenience	1.320	4	0.858	$p > 0.05$, null hypothesis is accepted
Security	2.087	4	0.720	$p > 0.05$, null hypothesis is accepted
Efficiency	0.915	4	0.922	$p > 0.05$, null hypothesis is accepted
Fulfilment	3.457	4	0.484	$p > 0.05$, null hypothesis is accepted
Understandability	6.943	4	0.139	$p > 0.05$, null hypothesis is accepted
Assurance	2.962	4	0.564	$p > 0.05$, null hypothesis is accepted
Accessibility	5.279	4	0.260	$p > 0.05$, null hypothesis is accepted
Time-Saving	3.845	4	0.427	$p > 0.05$, null hypothesis is accepted
Speed of Processing	4.285	4	0.369	$p > 0.05$, null hypothesis is accepted
Responsiveness	1.235	4	0.872	$p > 0.05$, null hypothesis is accepted
Quality of Service	5.580	4	0.233	$p > 0.05$, null hypothesis is accepted

All p-values for the parameters tested are greater than 0.05, indicating that no statistically significant differences exist between male and female respondents in their satisfaction levels with respect to ATM services. Therefore, Hypothesis 5 (H₀₅) “*There*

is no significant difference in satisfaction levels of ATM services with respect to gender across all parameters” is accepted for all 13 parameters considered in the study.

Table 4.14: Pearson’s Chi-Square Test Results of Internet Banking Satisfaction Levels (Gender)

Parameter	χ^2	df	p-value	Decision
Reliability	0.415	4	0.981	p > 0.05, Null Hypothesis is Accepted
Cost-Effectiveness	2.412	4	0.660	p > 0.05, Null Hypothesis is Accepted
Convenience	1.927	4	0.749	p > 0.05, Null Hypothesis is Accepted
Security	2.211	4	0.697	p > 0.05, Null Hypothesis is Accepted
Efficiency	4.074	4	0.396	p > 0.05, Null Hypothesis is Accepted
Fulfilment	1.455	4	0.835	p > 0.05, Null Hypothesis is Accepted
Understandability	2.967	4	0.563	p > 0.05, Null Hypothesis is Accepted
Assurance	1.284	4	0.864	p > 0.05, Null Hypothesis is Accepted
Accessibility	0.857	4	0.931	p > 0.05, Null Hypothesis is Accepted
Time-Saving	2.857	4	0.582	p > 0.05, Null Hypothesis is Accepted
Speed of Processing	1.189	4	0.880	p > 0.05, Null Hypothesis is Accepted
Responsiveness	1.547	4	0.818	p > 0.05, Null Hypothesis is Accepted
Quality of Service	3.667	4	0.453	p > 0.05, Null Hypothesis is Accepted

The Pearson’s Chi-Square test was applied to determine whether there is a significant association between the gender of the respondents and their level of satisfaction with various parameters of internet banking services. For all 13 parameters, the p-values are greater than 0.05, indicating that there is no statistically significant difference in satisfaction levels based on gender. Hence, the null hypothesis is accepted for each case.

This implies that both male and female respondents are equally satisfied with the services provided through internet banking across all the parameters considered in the study.

**Table 4.15: Pearson's Chi-Square Test Results of Debit/Credit Card Services
Satisfaction Levels (Gender)**

Parameter	χ^2	df	p-value	Decision
Reliability	0.432	4	0.980	p > 0.05, null hypothesis is accepted
Cost-Effectiveness	6.732	4	0.151	p > 0.05, null hypothesis is accepted
Convenience	6.326	4	0.176	p > 0.05, null hypothesis is accepted
Security	5.916	4	0.205	p > 0.05, null hypothesis is accepted
Efficiency	4.553	4	0.336	p > 0.05, null hypothesis is accepted
Fulfilment	4.016	4	0.404	p > 0.05, null hypothesis is accepted
Understandability	2.230	4	0.694	p > 0.05, null hypothesis is accepted
Assurance	2.380	4	0.666	p > 0.05, null hypothesis is accepted
Accessibility	1.841	4	0.765	p > 0.05, null hypothesis is accepted
Time-Saving	4.281	4	0.369	p > 0.05, null hypothesis is accepted
Speed of Processing	1.935	4	0.748	p > 0.05, null hypothesis is accepted
Responsiveness	3.072	4	0.546	p > 0.05, null hypothesis is accepted
Quality of Service	0.734	4	0.947	p > 0.05, null hypothesis is accepted

All p-values for the parameters tested are greater than 0.05, indicating that no statistically significant differences exist between male and female respondents in their satisfaction levels with respect to Internet banking services. Therefore, Hypothesis 6 (H_{06}) “*There is no significant difference in satisfaction levels of Internet banking services with respect to gender across all parameters*” is accepted for all 13 parameters considered in the study.

**Table 4.16: Pearson's Chi-Square Test Results of Mobile Banking Services
Satisfaction Levels (Gender)**

Parameter	χ^2	df	p-value	Decision
Reliability	1.619	4	0.805	p > 0.05, null hypothesis is accepted
Cost-Effectiveness	1.936	4	0.747	p > 0.05, null hypothesis is accepted
Convenience	1.123	4	0.891	p > 0.05, null hypothesis is accepted
Security	1.492	4	0.828	p > 0.05, null hypothesis is accepted
Efficiency	2.667	4	0.615	p > 0.05, null hypothesis is accepted
Fulfilment	3.693	4	0.449	p > 0.05, null hypothesis is accepted
Understandability	6.147	4	0.188	p > 0.05, null hypothesis is accepted

Assurance	0.431	4	0.980	$p > 0.05$, null hypothesis is accepted
Accessibility	14.416	4	0.683	$p > 0.05$, null hypothesis is accepted
Time-Saving	2.285	4	0.006	$p < 0.05$, null hypothesis is rejected
Speed of Processing	2.328	4	0.676	$p > 0.05$, null hypothesis is accepted
Responsiveness	4.868	4	0.301	$p > 0.05$, null hypothesis is accepted
Quality of Service	3.857	4	0.426	$p > 0.05$, null hypothesis is accepted

The Pearson's Chi-Square test shows no significant gender-based difference in satisfaction with most mobile banking service parameters, as p-values exceed 0.05. However, a considerable difference is observed in the time-saving aspect ($p = 0.006$), indicating that male and female respondents perceive this benefit differently. Overall, gender does not significantly influence satisfaction except in terms of time-saving.

4.6.5 Results of Kruskal-Wallis tests conducted

The results of the Kruskal-Wallis tests conducted to assess the existence of statistically significant differences in satisfaction level for different e-banking service categories on the basis of age, monthly income and educational qualification are summarized below from Table 4.17 – Table 4.28.

Table 4.17: Kruskal-Wallis Test Results of ATM Services Satisfaction Levels (Age)

Parameter	p-value	Decision
Reliability	0.319	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.130	$p > 0.05$, null hypothesis is accepted
Convenience	0.218	$p > 0.05$, null hypothesis is accepted
Security	0.972	$p > 0.05$, null hypothesis is accepted
Efficiency	0.529	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.373	$p > 0.05$, null hypothesis is accepted
Understandability	0.886	$p > 0.05$, null hypothesis is accepted
Assurance	0.051	$p > 0.05$, null hypothesis is accepted
Accessibility	0.363	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.058	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.168	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.168	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.402	$p > 0.05$, null hypothesis is accepted

The Kruskal-Wallis test was conducted to examine whether there are significant differences in the satisfaction levels of respondents toward various ATM service parameters across different age groups.

The test results reveal that for all parameters, the p-values are greater than 0.05. Therefore, the null hypotheses are accepted in all cases, suggesting that there is no statistically significant difference in satisfaction levels across different age groups for any of the ATM service parameters. In summary, the satisfaction level of customers with ATM services does not vary significantly by age in the study area.

Table 4.18: Kruskal-Wallis Test Results of Internet Banking Services Satisfaction Levels (Age)

Parameter	p-value	Decision
Reliability	0.766	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.180	$p > 0.05$, null hypothesis is accepted
Convenience	0.674	$p > 0.05$, null hypothesis is accepted
Security	0.264	$p > 0.05$, null hypothesis is accepted
Efficiency	0.336	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.240	$p > 0.05$, null hypothesis is accepted
Understandability	0.713	$p > 0.05$, null hypothesis is accepted
Assurance	0.387	$p > 0.05$, null hypothesis is accepted
Accessibility	0.850	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.878	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.535	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.912	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.290	$p > 0.05$, null hypothesis is accepted

The test results reveal that for all 13 service parameters, the P-values are greater than 0.05. This implies that the null hypothesis is accepted in all cases, indicating no statistically significant difference in satisfaction levels for internet banking services across the different age groups. Hence, we can conclude that age does not significantly influence customer satisfaction with internet banking services in the study area.

Table 4.19: Kruskal-Wallis Test Results of Debit/Credit Services Satisfaction Levels (Age)

Parameter	p-value	Decision
Reliability	0.345	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.179	$p > 0.05$, null hypothesis is accepted
Convenience	0.774	$p > 0.05$, null hypothesis is accepted
Security	0.245	$p > 0.05$, null hypothesis is accepted
Efficiency	0.679	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.312	$p > 0.05$, null hypothesis is accepted
Understandability	0.602	$p > 0.05$, null hypothesis is accepted
Assurance	0.522	$p > 0.05$, null hypothesis is accepted
Accessibility	0.598	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.245	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.062	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.855	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.457	$p > 0.05$, null hypothesis is accepted

The test results show that for all 13 parameters, the p-values are above 0.05, suggesting the null hypotheses are accepted. Even for parameters such as speed of processing ($p=0.062$) and cost-effectiveness ($p=0.179$), the values are not sufficiently low to reject the null hypothesis. There is no statistically significant difference in satisfaction levels with debit/credit card services across different age groups.

Across both internet banking and debit/credit card services, age has no significant impact on customer satisfaction with any of the evaluated service parameters in the study area.

Table 4.20: Kruskal-Wallis Test Results of Mobile Banking Satisfaction Levels (Age)

Parameter	p-value	Decision
Reliability	0.244	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.826	$p > 0.05$, null hypothesis is accepted
Convenience	0.039	$p < 0.05$, null hypothesis is rejected
Security	0.351	$p > 0.05$, null hypothesis is accepted
Efficiency	0.435	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.312	$p > 0.05$, null hypothesis is accepted
Understandability	0.899	$p > 0.05$, null hypothesis is accepted

Assurance	0.634	$p > 0.05$, null hypothesis is accepted
Accessibility	0.992	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.375	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.012	$p < 0.05$, null hypothesis is rejected
Responsiveness	0.516	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.108	$p > 0.05$, null hypothesis is accepted

For most parameters, the p-values are greater than the significance level (0.05), indicating that the null hypothesis is accepted. This means that the satisfaction levels for these parameters do not significantly differ across age groups. However, for two parameters, significant differences were observed: Convenience ($p = 0.039$). Since the p-value is less than 0.05, the null hypothesis is rejected, indicating that satisfaction levels for convenience vary significantly across age groups. Speed of Processing ($p = 0.012$): Here, too, the null hypothesis is rejected, suggesting significant variation in satisfaction based on age.

These findings imply that while age does not generally influence users' satisfaction with most aspects of mobile banking, it does have a statistically significant impact on how users perceive the convenience and processing speed of mobile banking services.

Table 4.21: Kruskal-Wallis Test Results of ATM Services Satisfaction Levels (Monthly Income)

Parameter	p-value	Decision
Reliability	0.290	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.367	$p > 0.05$, null hypothesis is accepted
Convenience	0.194	$p > 0.05$, null hypothesis is accepted
Security	0.581	$p > 0.05$, null hypothesis is accepted
Efficiency	0.557	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.742	$p > 0.05$, null hypothesis is accepted
Understandability	0.632	$p > 0.05$, null hypothesis is accepted
Assurance	0.502	$p > 0.05$, null hypothesis is accepted
Accessibility	0.450	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.518	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.467	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.732	$p > 0.05$, null hypothesis is accepted

Quality of Service	0.918	$p > 0.05$, null hypothesis is accepted
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The test results reveal that for all 13 service parameters, the P-values are greater than 0.05. This implies that the null hypothesis is accepted in all cases, indicating no statistically significant difference in satisfaction levels for ATM services across the different monthly income level groups. Hence, we can conclude that monthly income does not significantly influence customer satisfaction with ATM services in the study area.

**Table 4.22: Kruskal-Wallis Test Results of Internet Banking Services
Satisfaction Levels (Monthly Income)**

Parameter	p-value	Decision
Reliability	0.276	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.103	$p > 0.05$, null hypothesis is accepted
Convenience	0.215	$p > 0.05$, null hypothesis is accepted
Security	0.230	$p > 0.05$, null hypothesis is accepted
Efficiency	0.286	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.092	$p > 0.05$, null hypothesis is accepted
Understandability	0.281	$p > 0.05$, null hypothesis is accepted
Assurance	0.263	$p > 0.05$, null hypothesis is accepted
Accessibility	0.846	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.584	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.861	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.770	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.959	$p > 0.05$, null hypothesis is accepted

The test results reveal that for all 13 service parameters, the P-values are greater than 0.05. This implies that the null hypothesis is accepted in all cases, indicating no statistically significant difference in satisfaction levels for internet banking services across the different monthly income level groups. Hence, we can conclude that, monthly income does not significantly influence customer satisfaction with internet banking services in the study area.

Table 4.23: Kruskal-Wallis Test Results of Debit/Credit Card Services Satisfaction Levels (Monthly Income)

Parameter	p-value	Decision
Reliability	0.579	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.203	$p > 0.05$, null hypothesis is accepted
Convenience	0.807	$p > 0.05$, null hypothesis is accepted
Security	0.978	$p > 0.05$, null hypothesis is accepted
Efficiency	0.753	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.704	$p > 0.05$, null hypothesis is accepted
Understandability	0.905	$p > 0.05$, null hypothesis is accepted
Assurance	0.646	$p > 0.05$, null hypothesis is accepted
Accessibility	0.023	$p < 0.05$, null hypothesis is rejected
Time-Saving	0.502	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.035	$p < 0.05$, null hypothesis is rejected
Responsiveness	0.495	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.484	$p > 0.05$, null hypothesis is accepted

Out of the 13 parameters tested for debit/credit card services, significant differences based on monthly income were found in only two areas: Ease of Accessibility ($p = 0.023$). Satisfaction varies significantly across income groups. Speed of Processing ($p = 0.035$). Satisfaction also differs significantly among different income groups.

For the remaining parameters, the p-values were above 0.05, indicating no significant difference in satisfaction across income levels. Monthly income influences how users perceive the accessibility and speed of debit/credit card services, but not other aspects.

Table 4.24: Kruskal-Wallis Test Results of Mobile Banking Services Satisfaction Levels (Monthly Income)

Parameter	p-value	Decision
Reliability	0.043	$p < 0.05$, null hypothesis is rejected
Cost-Effectiveness	0.541	$p > 0.05$, null hypothesis is accepted
Convenience	0.024	$p < 0.05$, null hypothesis is rejected
Security	0.192	$p > 0.05$, null hypothesis is accepted
Efficiency	0.541	$p > 0.05$, null hypothesis is accepted

Fulfilment	0.157	$p > 0.05$, null hypothesis is accepted
Understandability	0.258	$p > 0.05$, null hypothesis is accepted
Assurance	0.257	$p > 0.05$, null hypothesis is accepted
Accessibility	0.029	$p < 0.05$, null hypothesis is rejected
Time-Saving	0.052	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.011	$p < 0.05$, null hypothesis is rejected
Responsiveness	0.748	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.744	$p > 0.05$, null hypothesis is accepted

Among the 13 parameters tested for mobile banking services, four aspects showed significant differences in satisfaction across different monthly income groups: Reliability ($p = 0.043$), Convenience ($p = 0.024$), Ease of Accessibility ($p = 0.029$) and Speed of Processing ($p = 0.011$). Since their p-values are less than 0.05, the null hypotheses are rejected for these. For the other nine parameters, the p-values are greater than 0.05, meaning there is no significant variation in satisfaction based on income levels. Monthly income significantly affects satisfaction with mobile banking in terms of reliability, convenience, accessibility, and processing speed, but not the other service aspects.

Table 4.25: Kruskal-Wallis Test Results of ATM Services Satisfaction Levels (Educational Qualification)

Parameter	p-value	Decision
Reliability	0.416	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.740	$p > 0.05$, null hypothesis is accepted
Convenience	0.463	$p > 0.05$, null hypothesis is accepted
Security	0.669	$p > 0.05$, null hypothesis is accepted
Efficiency	0.272	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.289	$p > 0.05$, null hypothesis is accepted
Understandability	0.335	$p > 0.05$, null hypothesis is accepted
Assurance	0.473	$p > 0.05$, null hypothesis is accepted
Accessibility	0.226	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.162	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.037	$p < 0.05$, null hypothesis is rejected
Responsiveness	0.527	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.067	$p > 0.05$, null hypothesis is accepted

The Kruskal-Wallis test results in Table 4.25 show that for most ATM service parameters, p-values are greater than 0.05, indicating no significant difference in satisfaction levels across different educational qualifications. The null hypothesis is accepted for all except one parameter, speed of processing ($p = 0.037$), where the null hypothesis is rejected, suggesting that satisfaction with the speed of ATM processing significantly varies among respondents with different educational backgrounds.

TABLE 4.26: Kruskal-Wallis Test Results of Internet Banking Services Satisfaction Levels (Educational Qualification)

Parameter	p-value	Decision
Reliability	0.695	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.270	$p > 0.05$, null hypothesis is accepted
Convenience	0.166	$p > 0.05$, null hypothesis is accepted
Security	0.781	$p > 0.05$, null hypothesis is accepted
Efficiency	0.429	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.535	$p > 0.05$, null hypothesis is accepted
Understandability	0.171	$p > 0.05$, null hypothesis is accepted
Assurance	0.463	$p > 0.05$, null hypothesis is accepted
Accessibility	0.047	$p < 0.05$, null hypothesis is rejected
Time-Saving	0.782	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.355	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.518	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.696	$p > 0.05$, null hypothesis is accepted

The Kruskal-Wallis test results in Table 4.26 reveal that for most Internet banking service parameters, p-values are greater than 0.05, indicating no statistically significant difference in satisfaction levels across different educational qualification categories. The null hypothesis is accepted for all parameters except one, ease of accessibility ($p = 0.047$), where the null hypothesis is rejected, signifying that satisfaction regarding the ease of accessibility of Internet banking services significantly differs among respondents with varying educational backgrounds.

Table 4.27: Kruskal-Wallis Test Results of Debit/Credit Card Services Satisfaction Levels (Educational Qualification)

Parameter	p-value	Decision
Reliability	0.468	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.177	$p > 0.05$, null hypothesis is accepted
Convenience	0.969	$p > 0.05$, null hypothesis is accepted
Security	0.559	$p > 0.05$, null hypothesis is accepted
Efficiency	0.984	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.997	$p > 0.05$, null hypothesis is accepted
Understandability	0.939	$p > 0.05$, null hypothesis is accepted
Assurance	0.677	$p > 0.05$, null hypothesis is accepted
Accessibility	0.307	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.414	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.331	$p > 0.05$, null hypothesis is accepted
Responsiveness	0.272	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.867	$p > 0.05$, null hypothesis is accepted

All p-values for the parameters tested are greater than 0.05, indicating no statistically significant difference in satisfaction levels of debit/credit card services across different parameters for debit/credit card services on the basis of educational qualifications.

Table 4.28: Kruskal-Wallis Test Results of Mobile Banking Services Satisfaction Levels (Educational Qualification)

Parameter	p-value	Decision
Reliability	0.510	$p > 0.05$, null hypothesis is accepted
Cost-Effectiveness	0.128	$p > 0.05$, null hypothesis is accepted
Convenience	0.370	$p > 0.05$, null hypothesis is accepted
Security	0.159	$p > 0.05$, null hypothesis is accepted
Efficiency	0.442	$p > 0.05$, null hypothesis is accepted
Fulfilment	0.642	$p > 0.05$, null hypothesis is accepted
Understandability	0.140	$p > 0.05$, null hypothesis is accepted
Assurance	0.332	$p > 0.05$, null hypothesis is accepted
Accessibility	0.444	$p > 0.05$, null hypothesis is accepted
Time-Saving	0.202	$p > 0.05$, null hypothesis is accepted
Speed of Processing	0.289	$p > 0.05$, null hypothesis is accepted

Responsiveness	0.432	$p > 0.05$, null hypothesis is accepted
Quality of Service	0.324	$p > 0.05$, null hypothesis is accepted

The Kruskal-Wallis test results in Tables 4.27 and 4.28 reveal that, for all examined parameters of internet banking and mobile banking services, the p-values are greater than 0.05. This indicates no statistically significant differences in the satisfaction levels among respondents across different educational qualification groups. Consequently, the null hypotheses for both service categories are accepted, implying that educational qualification does not have a significant influence on customers' satisfaction with either internet banking or mobile banking services.

**Table 4.29: Summary of Hypothesis Testing Results (Pearson's Chi-Square Test)
(Significant Findings)**

Null Hypothesis	X ²	df	p-value	Decision
The distribution of respondent's satisfaction for time-saving element of mobile banking is the same across categories of gender of respondent	2.285	4	0.006	$p < 0.05$, null hypothesis is rejected

The Pearson's Chi-Square test result in Table 4.29 shows that for the parameter 'time-saving' element of mobile banking, the p-value (0.006) is less than 0.05, indicating a statistically significant difference in satisfaction levels between male and female respondents. Therefore, the null hypothesis is rejected, suggesting that gender influences perceptions of mobile banking's time-saving aspect. This means male and female respondents differ in how they perceive the time-saving benefits of mobile banking.

**Table 4.30: Summary of Hypothesis Testing Results (Kruskal-Wallis Test)
(Significant Findings)**

Null Hypothesis Statement	p-value	Decision
Satisfaction with the convenience of mobile banking is the same across all age categories	0.039	$p < 0.05 \rightarrow$ Rejected
Satisfaction for speed of processing of mobile banking is the same across all age categories	0.012	$p < 0.05 \rightarrow$ Rejected

Satisfaction for ease of accessibility of debit/credit card services is the same across all monthly income categories	0.023	$p < 0.05 \rightarrow$ Rejected
Satisfaction for speed of processing of debit/credit card services is the same across all monthly income categories	0.035	$p < 0.05 \rightarrow$ Rejected
Satisfaction for reliability of mobile banking is the same across all monthly income categories	0.043	$p < 0.05 \rightarrow$ Rejected
Satisfaction for convenience of mobile banking is the same across all monthly income categories	0.024	$p < 0.05 \rightarrow$ Rejected
Satisfaction for ease of accessibility of mobile banking is the same across all monthly income categories	0.029	$p < 0.05 \rightarrow$ Rejected
Satisfaction for speed of processing of mobile banking is the same across all monthly income categories	0.011	$p < 0.05 \rightarrow$ Rejected
Satisfaction for speed of processing of ATM is the same across all educational qualification categories	0.037	$p < 0.05 \rightarrow$ Rejected
Satisfaction for ease of accessibility of internet banking is the same across all educational qualification categories	0.047	$p < 0.05 \rightarrow$ Rejected

The Kruskal-Wallis test identified ten cases where demographic factors significantly influenced satisfaction with specific e-banking service attributes ($p < 0.05$).

- **Age-based differences:**

Satisfaction with *convenience* ($p = 0.039$) and *speed of processing* ($p = 0.012$) in mobile banking varied significantly across age groups, likely reflecting differences in technological familiarity, service expectations, and usage habits.

- **Income-based differences:**

Monthly income significantly affected satisfaction with:

- **Debit/Credit Card Services** – *ease of accessibility* ($p=0.023$) and *speed of processing* ($p=0.035$).
- **Mobile Banking** – *reliability* ($p=0.043$), *convenience* ($p=0.024$), *ease of accessibility* ($p=0.029$), and *speed of processing* ($p=0.011$). These results suggest that income groups have differing expectations and experiences with e-banking services.

- **Education-based differences:**

Educational qualification influenced satisfaction with the *speed of processing* in ATM services ($p = 0.037$) and *ease of accessibility* in internet banking ($p=0.047$).

Overall, while gender did not significantly affect satisfaction in earlier tests, age, income, and education emerged as key determinants for specific e-banking service attributes. These findings highlight the need for targeted strategies such as age-specific user training, income-sensitive product features, and improved accessibility for different education levels to enhance customer experience and adoption.

CHAPTER V

CHALLENGES OF E-BANKING SERVICES IN NAGALAND

5.1 Introduction

The present chapter attempts to identify and highlight the key challenges of e-banking services and the barriers to their growth in Nagaland in alignment with the fourth objective of the present study. It explores the root cause of the challenges by looking into the economic landscape of the state, its topography, socio-cultural aspects and customer psychology.

Numerous research studies have been conducted worldwide and within the country, whose findings have been able to bring to light the different types of problems and challenges that affect the banking industry. The findings of these studies help to bring out certain issues and challenges, particularly those that affect the customer's experience of using technology-based or digital services.

For the present study, these literatures have been analysed critically to identify some common problems which both customers and banks face when using e-banking or other electronic-based services. To gain a better understanding of the nature, types and categories of problems which bank customers face when handling or using the different e-banking services.

5.2 An Overview of the Challenges

The challenges of the e-banking sector are affected by both internal and external factors, some of which are within the scope of control, while others are beyond the scope of control of the banking institutions. There are many internal factors of the banking industry and banking institutions that contribute towards determining the nature, type and volume of challenges as well as problems of the e-banking sector. However, these challenges can be directly confronted by the banks in the pursuit of tackling their problems and are therefore often manageable to a significant degree.

On the other hand, the delivery of banking services, particularly that of its e-banking services, are by its very nature, highly dependent on the facilities and contributions of external industries such as the telecom sector, internet service providers, transportation sector and other such key infrastructural factors. This aspect of high dependence on external agencies for its survival, thus, becomes a challenge for the e-banking sector in particular and the banking industry in general, since all these factors are external to the industry and therefore beyond its direct scope of control. The circumstances, therefore, create a situation whereby the quality and delivery of e-banking services rely, to a significant degree, on the shoulders of its counterpart institutions. In this regard, the development of these external industries has a direct bearing on the quality of e-banking services, therefore significantly affecting the nature of its challenges as well.

Other external factors which may affect the quality of e-banking services and possibly be added to the existing infrastructural challenges include geographical location, mentality of customer base, socio-economic profile of customers, psychological and cognitive capacities, availability of institutional/ government support and so on. All of these factors play a crucial role in determining the level of success and acceptance of e-banking services in a region.

Despite the substantial growth in the e-banking sector in Nagaland, there still exist multiple significant challenges to the system. As discussed, these challenges often arise due to the various internal inefficiencies of the banks and the banking system or external forces beyond the control of the banks. By observing and studying the various challenges which are impacting the e-banking sector in the state, these can essentially be divided into two primary categories, namely-

1. Challenges faced by the banks and
2. Challenges faced by the bank customers.

The primary data collected for this present study provides some valuable insight into this situation.

5.3 A Rural Majority Landscape and the Challenges it Brings for the E-Banking Sector

The quality of infrastructural facilities and connectivity in any region is greatly influenced by the natural topography and climatic conditions of that particular geographical location. Moreover, the pace of economic development of the region and the composition of its population, whether it is composed predominantly of rural or urban areas, also play a significant role in determining the quality of these services. To get a clearer insight into the challenges of the banking sector, it becomes necessary to examine critically the scenario of the state profile of Nagaland.

5.3.1 Nagaland State Profile

Nagaland, the 16th state of the Indian Union, is located in the far north-eastern part of India. It shares boundaries with Arunachal Pradesh and parts of Assam to the north, Manipur to the south, Assam to the west and an international border with Myanmar to the east. According to the 2011 census, the population of Nagaland was reported at 19,78,502; however, the Directorate of Economics and Statistics, Government of Nagaland, has projected the state's population to reach 43,35,000 by 2024⁴⁵.

Approximately 70% of the total population resides in rural areas, while the remaining 30% live in semi-urban and urban regions. The state's workforce is predominantly engaged in the informal sector, and are largely linked directly or indirectly to agriculture, with farmers constituting around 45.47% of the total workforce. As of 2025, Nagaland comprises 17 districts: Chümoukedima, Dimapur, Kiphire, Kohima, Longleng, Meluri, Mokokchung, Mon, Niuland, Noklak, Peren, Phek, Shamator, Tseminyu, Tuensang, Wokha and Zunheboto.

⁴⁵ Projection released by Advisor for Information Technology & Communication, Evaluation and Economics & Statistics, H. Sethrongkyu Sangtam.

5.3.2 The ‘rural’ challenges

The most basic difference between urban and rural areas is the condition of the environment, and rural people are often unfamiliar with advanced technology (Yahya & Yahya, 2020)⁴⁶. Northeastern states of India have long grappled with congested roads and limited connectivity (Fruman, 2023)⁴⁷ among other developmental issues. Spatial inequalities and uneven development are often significant challenges between urban and rural areas, where the former gets the priority in most cases, thus creating a stark difference in the livelihoods, accessibility, quality of life, access to facilities and resources and connectivity infrastructure between the two, wherein the rural population is often dealt with the shorter end of the stick. The progress in rural regions in the country is very slow and often displayed uneven progression between different sectors (Deaton & Dreze, 2002)⁴⁸

There are concerns that banks have not been able to reach and bring a vast segment of the population, especially the underprivileged sections of the society, into the fold of basic banking services (Puttaswamy, 2018)⁴⁹. The information on the state profile of Nagaland indicates that the state is comprised primarily of rural areas, which constitute at least 70% of the total land area; as such, it can be understood that in this context, the majority of the population is rural and therefore, falls under the vulnerable category of population who are deprived of many key infrastructural facilities. This lack of infrastructural support inhibits to a great extent the opportunities for the proper introduction, adoption and use of e-banking services by the people.

⁴⁶ Yahya T., & Yahya S. (2020). social characteristics and differences of urban and rural communities. *Journal La Sociale*, 1(5), 24-27.

⁴⁷ Fruman, C. (2023). *In Northeast India, all roads lead to greater development*. End Poverty in South Asia.

⁴⁸ Deaton, A., & Dreze, J. (2002). Poverty and inequality in India: A re-examination. *Economic and Political Weekly*, 37(36), 3729–3748.

⁴⁹ Puttaswamy G.M. (2018). Impact of e-banking on rural India- A bird’s eye view. *Asian Journal of Management*, 9(3), 1191-1194.

The following are some of the key challenges facing the e-banking sector in Nagaland, arising directly or indirectly from the State's predominantly rural landscape, economic constraints and underlying social inequities:

1. Prolonged priority-based sector development in rural areas

Even though many different types of developmental efforts have been carried out to promote the rural regions in the state and other parts of the country, even today, like in the past, most of these developmental efforts are targeted to promote agriculture and related aspects in the region. This developmental strategy (emphasising the agricultural sector) may be the norm, owing to its significance for the concerned rural population, since most livelihoods are directly dependent on the agricultural sector in these areas. There exist pre-established prejudices and assumptions that promotion and development of the agricultural sector will benefit the rural population and have the most significant impact on the rural economy.

However, this type of selective developmental strategy aimed at promoting certain sectors before others often hampers the progress of other sectors, such as e-banking, which takes a back seat, as it is not considered crucial enough. Such developmental strategies, though practical in nature and do not lack a logical foundation, can result in the creation of a scenario having a detrimental impact on the overall development of the rural population in the long run. One may notice and even argue that such activities, if not regulated properly, can pose a serious challenge to the e-banking sector in particular and the banking industry in general. The practice of prioritising one sector over the other does not cause or bring substantial disadvantage to the rural population. In fact, this type of strategized development planning is considered necessary to promote rural development in a phased manner. The cognisance of the cross or multi-sectoral perspective to development is very limited (Ellis & Biggs, 2001)⁵⁰ in rural areas.

⁵⁰ Ellis, F., & Biggs, S. (2001). Evolving themes in rural development 1950s-2000s. *Development Policy Review*, 19(4), 437-448.

However, the timely revision of identifying priority sectors is necessary. The digital era we are living in makes it impossible to continue living in a modern society without equipping the masses with the basic knowledge to navigate technological advancements. As such, the challenge of deepening the digital footprint in rural areas should be addressed. The people's right to information and basic financial services should be prioritised to bridge the gap between the rural and urban populations.

The rural population's need for access to basic banking services can be effectively addressed through e-banking, highlighting its growing significance in today's context. Since the development of any sector is often constrained without government support and proper policy implementation, the government and the banking system need to collaborate. Such joint initiatives can strengthen efforts towards financial inclusion, enhance financial literacy, and further deepen the digital banking ecosystem in Nagaland, particularly in its rural regions.

2. Poor infrastructure and connectivity

Development in Nagaland has been very slow, and the infrastructure within the state has seen very little growth over the years. A good and robust infrastructure is required to create an environment capable of coping with the changing times and demands of the 21st century. For e-banking to thrive, 3 infrastructural components, namely connectivity (road, rail, air), power and telecom/ internet services, are considered vital. The natural geographical topography of Nagaland, coupled with the vast expanse of the rural regions in the state, makes it an extremely daunting task to promote evenly paced infrastructure development across all 17 districts.

The infrastructure in the urban and semi-urban towns and cities in Nagaland has reached a satisfactory level in many aspects in recent years; however, many rural regions and villages are still extremely lacking in terms of basic and elemental infrastructural facilities. This makes the process of expanding e-banking reach and deepening the digital banking ecosystem extremely difficult due to insufficient facilities and support.

3. Sparse population

Rural regions are often characterised by sparse population coverage. In India, areas with a population of less than 5000, a population density below 400 per sq. km and over 25% of the male working population engaged in agriculture are classified as 'rural'. Nagaland, with a population density of 119 per sq. km, falls well below this national benchmark. Many rural areas suffer from poor road connectivity, and telecom and internet services remain limited or non-existent. Additionally, the village system in rural Nagaland is highly segmented, reducing the feasibility of establishing bank branches, conducting financial literacy programs, organising routine bank camps, or introducing technology-driven e-banking services.

Consequently, the state's bank branch network is heavily clustered around urban and semi-urban areas, which cover only 30% of the total land area. This concentration creates significant challenges in providing basic banking facilities to the rural population and limits the development of the e-banking sector in these regions.

4. Looming illiteracy among rural inhabitants

Owing to the lack of infrastructural development and resource constraints in the rural regions of Nagaland, there remains very low accessibility to basic facilities such as education. The average literacy rate in Nagaland is 79.55%. Moreover, the actual literacy rate in many rural villages is expected to be lower than the state average, and though the enrolment of children in these areas is increasing over the years, illiteracy remains rather prevalent among many adults presently. Many belonging to the older generations of the rural community in Nagaland have not had any formal education.

This creates a big challenge for the e-banking sector as many of the services require basic comprehension skills and understanding of elementary knowledge concepts for proper utilisation. Under such situations, the effectiveness of e-banking awareness camps, sensitisation programs and training efforts goes wasted, since the beneficiary's ability to use the e-banking services effectively afterwards is not guaranteed. For many, especially the older population, the system sometimes proves to be too complex to operate. So, this may lead to a lack of interest in the services,

since they will receive very little or no benefits from the use of the e-banking services. In many cases, banks are able to generate some awareness about e-banking services, but fail to generate interest and therefore adoption of e-banking services, thus also ultimately affecting the usage rates.

5. Low financial literacy and digital literacy rates

People living in rural regions enjoy simple living and are often very sceptical of new developments or outside influence. To add to this, the economic development in rural areas is slow, and rural households in Nagaland operate largely on rudimentary knowledge of finance. There is very little financial literacy among the people, and so, modern concepts of banking, such as e-banking services and digital payment systems, are very little known. Over the years, significant progress under the financial inclusion schemes has been recorded; however, the reality for many in this regard remains below satisfactory.

There is also a prevalence of low digital literacy in rural Nagaland, since the lack of facilities due to poor infrastructure poses a significant restriction on the digital progress of these regions. Many factors act as roadblocks towards the generation of ample interest levels among the rural population, particularly the older generation. Moreover, whenever little interest is built, the inadequate and inefficient resources available create barriers for the banks. This comes in stark contrast to the urban population, where there exist a potent curiosity and willingness to try new e-banking services, and widespread positive acceptance and adoption rates of these services can be observed. There is also high awareness in urban areas, which usually translates to higher usage rates, particularly for digital banking services coming under the mobile banking service category.

6. The prevalence of poverty

Poverty in rural regions is a prevalent issue that continues to plague rural households. According to the Nagaland Economic Survey 2018-19, an estimated 18.88% people live below the poverty line. There is relatively high and widespread poverty in many districts, which are categorically considered as rural areas. The poor infrastructure, lack of economic development, backward way of living and lack of

relevant skill set deprive the rural population of the existing opportunities to earn a livelihood outside their villages. In Nagaland, as it is in India, *there is a very limited scope for rural people to find respectable employment outside the agricultural sector* (Sharath, 2020)⁵¹. This leads to a continuous poverty cycle. Advocating the benefits of e-banking services to groups of people living in adverse poverty becomes a significant challenge owing primarily to the lack of relevance for such services in their lives, including factors like low benefits, low interest or curiosity. People living in poverty are not capable of maintaining a lifestyle conducive to the adoption and utilisation of e-banking services in the long run.

7. Psychology and mindset of rural population (resistance to change, mistrust, superstitious, communal mindset, herd mentality)

Banks face difficulties in convincing the rural people to step out of their comfort zones and try the different e-banking services. The rural population in Nagaland harbours scepticism towards outside influences and are often seen to remain loyal to tried and tested methods which have been in practice for some time. Therefore, the efforts to educate the masses about the benefits of using e-banking services mostly remain fruitless, since people are not willing to divert from their usual lifestyles.

The mindset of the people in rural villages of Nagaland, coupled with the poor infrastructure, becomes a potent combination for deterring the residents against the adoption and usage of e-banking services. Despite the challenges that the e-banking sector is facing, it has become the best vehicle for enabling financial inclusion in these rural regions. The rural masses play a very crucial and significant role in building up the country's economy. Therefore, banks are eagerly providing more and more banking facilities to rural areas. *The focus of banks has been shifted from well-structured cities to rural banking platforms as most of the banks have become technology-enabled* (Puttaswamy, 2018)⁵²

⁵¹ Sharath, A.M. (2020). Poverty in India- A study of rural poverty. *Perspectives on Business Management & Economics*, Vol III, 147-152.

⁵² Puttaswamy G.M. (2018). op cit.

5.4 Major Challenges Faced by Banks with Regard to E-Banking Services

In the present study, banks located in the districts of Kohima and Dimapur were selected randomly. Subsequently, 50 bank officials were also randomly chosen and interviewed to get insights into the various challenges faced by the banking sector in promoting e-banking services in Nagaland. Based on these interviews, the major challenges encountered by banks are outlined as follows:

1. Maintenance and technical issues

The quality of e-banking services is greatly influenced by the condition of its infrastructure, which can be both physical and virtual/digital in nature. The physical component of the e-banking structure includes the different bank branch networks, smart devices/electronic devices, regular power supply and cable network for internet and telecom connectivity. All of these need routine maintenance work to function effectively; however, since many aspects of the physical infrastructure components, which are essential for sustaining e-banking services, are external to the banking industry, it becomes even more challenging to ensure their maintenance.

In Nagaland, the lack of proper ground maintenance personnel also hampers the development of e-banking services since there is very little scope to find well-trained personnel to handle repairs and upkeep of many essential devices such as ATMs, POS devices and Micro ATMs. The virtual aspect of e-banking services infrastructure refers to the different digital innovations and technologies that help to facilitate the various e-banking services and activities. The major elements of the virtual infrastructure may include the different database management software in use, online platforms such as portals, gateways, websites, mobile applications, core banking system, data security and encryption.

All these also require constant upkeep and maintenance, since these technologies are in a constant state of change and development. This becomes very resource-intensive for the banking industry. A minor issue in any of the virtual elements can set off overlapping issues across many different platforms and ultimately have an adverse effect on the e-banking service users. Owing to the highly sensitive nature of e-banking transactions, ensuring proper maintenance of both physical and

virtual infrastructure is vital for ensuring the safety and integrity of the system. While online services may save time and effort for the customer, on the banks' end, the offering of such services becomes very labour-intensive on the administrative end. *Properly trained bank employees are vital in order to maintain and uphold the high quality of services in the new e-banking structure* (Yang, J. et al. 2005)⁵³.

2. Identifying and reaching customers unaware of e-banking services

Though the rate of e-banking awareness and usage has improved significantly over the years, many of the banks in the state still face the persistent challenge of identifying and assisting those customers who have little or no awareness about the e-banking services. Moreover, the problem of implementing targeted awareness drives for this particular subset of customers is an added challenge, as it is almost impossible to segregate the customers based on awareness levels alone.

Though banks carry out awareness drives, camps and workshops, the impact of these activities remains unnoticed if the target customer group is not reached. Therefore, such activities may not reflect positively on their outcome.

3. Lack of enthusiasm from elderly, rural and illiterate customers

Banks in Nagaland continue to face the persistent challenge of generating interest in e-banking services, particularly among senior citizens, rural customers and illiterate customers. These customer groups are often the most resistant to adopting e-banking, showing reluctance to learn about its benefits. Given the technological nature of e-banking, such customers frequently lack the necessary skills and basic technical knowledge to perform transactions. Factors such as advanced age, socio-economic background, and limited exposure to technology contribute to their low confidence and patience in engaging with e-banking services

⁵³ Yang, J. et al. (2005). E-banking in rural area- recent trend and development: A case study. *Communications of the IIMA*, 5(4), Article 9.

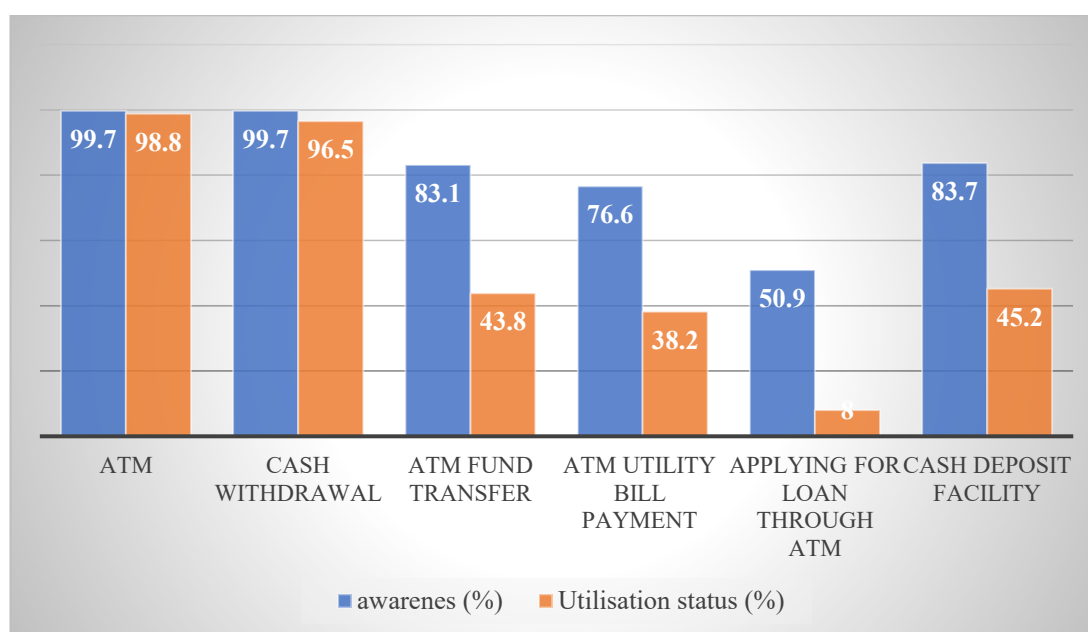
4. Hesitance in adoption and usage of e-banking services

In Nagaland, there still exists, among the bank customers, a prevailing sense of distrust of new-age innovations such as e-banking services, owing to the pre-disposed negative assumptions surrounding security risks and heightened vulnerability to cybercrimes. Certain customers, especially the older generation, are also simply not interested and prefer to remain in the traditional banking domain, as they feel more comfortable in doing so. There also exists a certain degree of aversion to technology and an unwillingness to associate or learn about modern technological advancements. This type of mentality and behaviour, which can be found in a certain subset of customers, can cause a lot of problems for the banks.

In many cases, over the course of the scheduled interview undertaken, bank officials have pointed out *that wherever awareness of the e-banking services is achieved, this does not translate to usage among the bank customers, leading to low adoption rates of a large number of e-banking services.* The data collected also suggests that many bank customers use only a certain number of e-banking services even though all facilities may be available to them. This may be due to the sheer number of e-banking services available to choose from, or simply because the customers can fulfil their needs by using only a few of the e-banking services. Therefore, a big challenge for the banks is to come up with creative and effective measures to convince such customers to use the different e-banking services.

The primary data collected for the purpose of this study allows us to look deeper into the awareness levels of various e-banking services and the corresponding adoption/usage levels for these same services. This gives us a better insight into understanding the status of e-banking usage in the state of Nagaland.

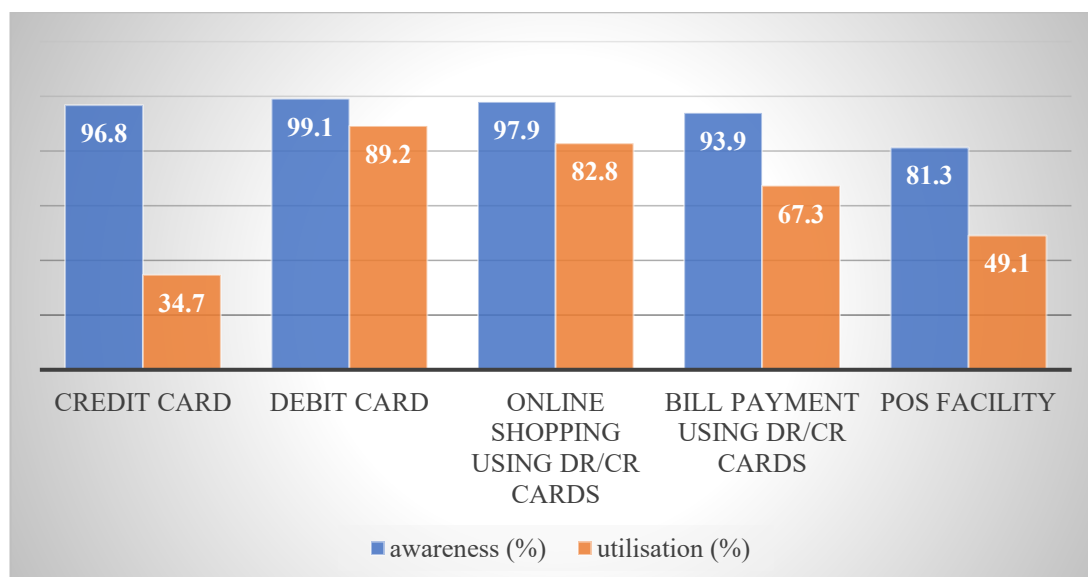
Chart 5.1: Comparison of Respondents' Awareness Levels and Corresponding Usage Rate of ATM Services



Source: Primary Data

The chart presents the awareness and utilisation rates for various facilities under ATM services. Overall, ATM services show high awareness (99.7%) and usage (98.8%), primarily driven by the cash withdrawal facility (awareness- 99.7%; utilisation 96.5%). However, significant gaps exist for other ATM facilities. Awareness and usage for fund transfer are 83.1% and 43.8%, respectively; for utility bill payments 76.6% and 38.2%; and for cash deposits, 83.7% and 45.2%. Facility for applying for loans through ATMs show very low awareness (50.9%) and a negligible usage rate (8%) indicating that these advanced services are yet to gain traction among customers.

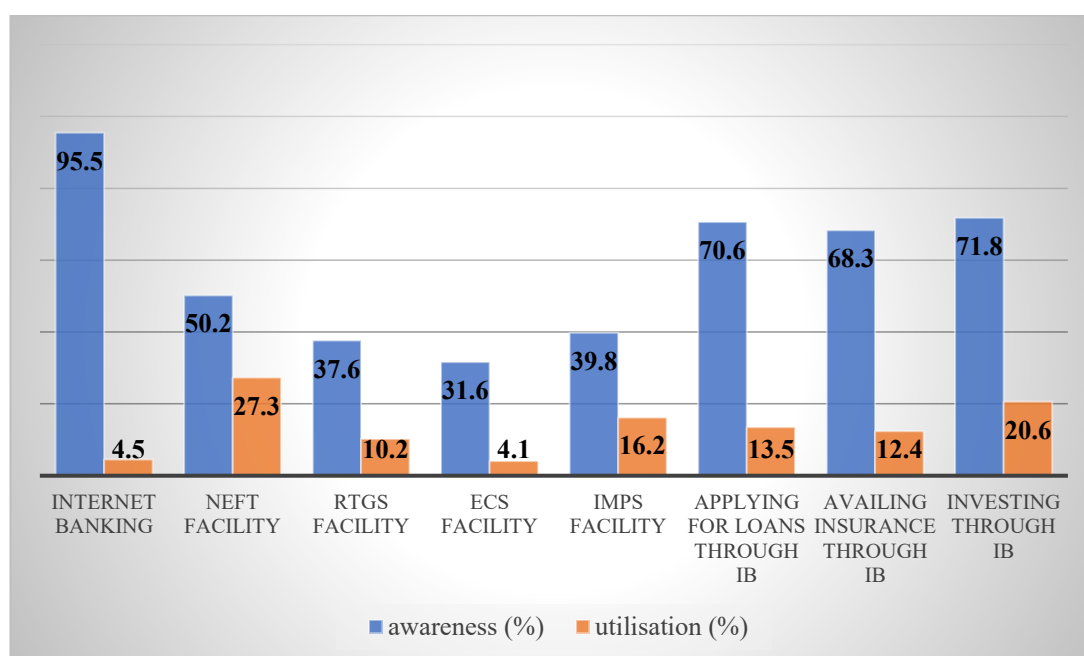
Chart 5.2: Comparison of Respondents' Awareness Levels and Corresponding Usage Rate of Debit/Credit Cards Services



Source: Primary Data

The data on debit/credit card services highlight a notable difference in awareness and utilisation. While awareness is high for both credit (96.8%) and debit (99.1%) card services, their usage rates differ significantly. Only 34.7% of credit card holders actively use their cards, compared to 89.2% of debit card users. This indicates that credit card adoption in the state remains below desirable levels. Usage patterns also reveal that card use for online shopping is high (82.8%) and payment of utility bills via cards is satisfactory (67.3%). However, a substantial gap exists between awareness and use of POS facilities, with awareness at 81.3% but utilisation only at 49.1%, suggesting underutilisation of card-based transactions in physical retail settings.

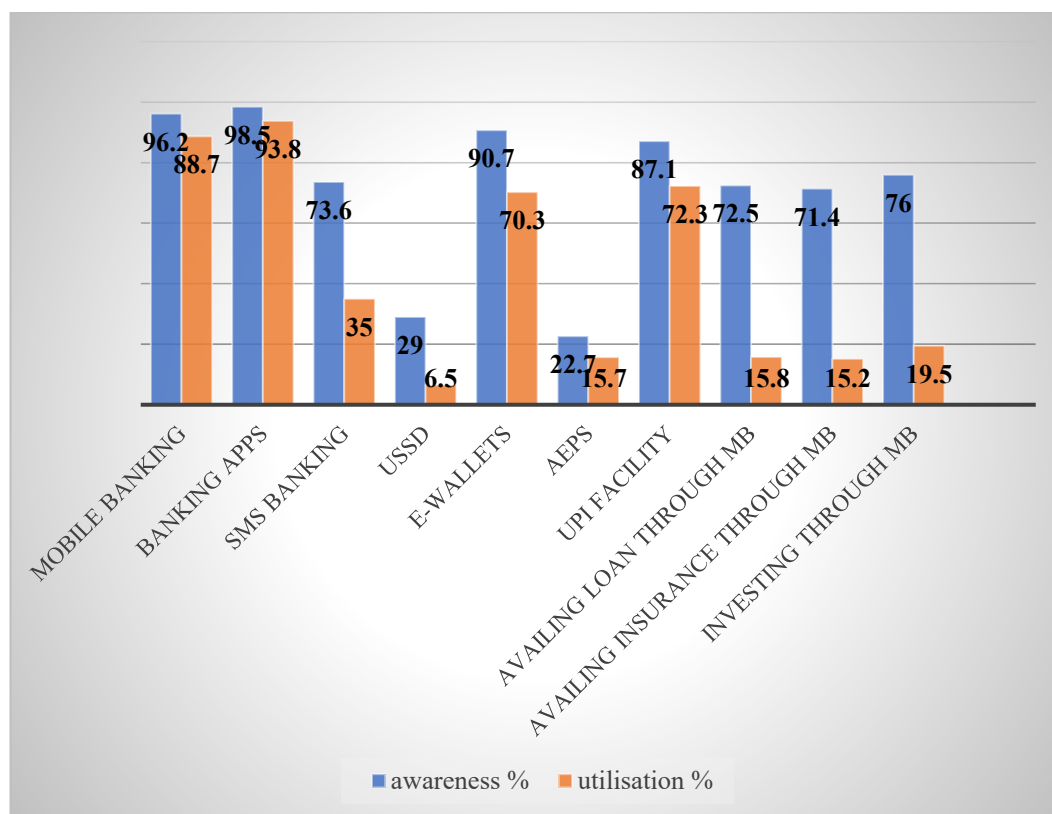
Chart 5.3: Comparison of Respondents' Awareness Levels and Corresponding Usage Rate of Internet Banking Services



Source: Primary Data

In Nagaland, the internet banking services category under e-banking services, display the widest gaps between overall awareness and utilisation rates. While general awareness of the existence of internet banking services remains significantly high (95.5%), it accounts for a usage rate of only 4.5%. This implies that there exists a mammoth gap between the awareness and utilisation rates of internet banking services among bank customers in the state. The data also reveals that there is a comparatively lower rate of awareness for the different facilities available under internet banking services. The average rate of awareness for these facilities is calculated at just 52.8% while the average usage rate comes to 0.15% only. Therefore, one can safely assume that the popularity and performance of internet banking services is sub-par and need a big boost in efforts for sensitisation, generating awareness and interest among the bank customers. Advocating for the different facilities available and the various benefits of these service sub-categories in a more rigorous manner may help to improve the present statistics in the future.

Chart 5.4: Comparison of Respondents' Awareness Levels and Corresponding Usage Rate for Mobile Banking Services



Source: Primary Data

The data collected with regard to awareness and utilisation rates for mobile banking category of e-banking services shows a very interesting and informative picture of the present e-banking scenario in the state of Nagaland. There is a high awareness of general mobile banking services (96.2%) which is paired with high rate of utilisation also (88.7%). Much like ATM service category, even under mobile banking, the high awareness and high utilisation pairing is observed only for certain key facilities under the service category, namely- banking apps (awareness- 98.5% and utilisation- 93.8%), e-wallets (awareness- 90.7% and utilisation- 70.3%) and UPI facility (awareness- 87.1% and utilisation 72.3%).

Further, we can also observe that the bank customers are more familiar with the term 'mobile banking apps' rather than 'mobile banking' itself. This shows how popular such apps have become in the present-day context. On the other hand, certain

mobile banking facilities show high awareness levels but very low usage rate. These services include- SMS banking (awareness-73.6% and utilisation 35%), facility to avail loans through mobile banking platforms (awareness- 72.5% and utilisation- 15.5%), facility to avail insurance through mobile banking platforms (awareness- 71.4% and utilisation- 15.2%) and lastly facility to invest through mobile banking platforms (awareness- 76% and utilisation- 19.5%). There are also certain mobile banking service sub-categories which have very low awareness as well as usage rates like USSD (awareness- 29% and utilisation- 6.5%) and AePS services (awareness- 22.7% and utilisation- 15.3%).

5. Selective awareness and interest in e-banking services among bank customers

Banks also face challenges due to selective awareness and interest among their customers. The e-banking sector offers a wide range of services and facilities; however, many of these remain underutilised for various reasons.

Depending on their relevance, utility, ease of use and convenience, only a few of these services establish strong engagement with customers, while others are often ignored or left unused. This uneven awareness and utilisation of e-banking services pose a challenge for banks, as underused services may become redundant and financially burdensome due to the cost associated with their upkeep and maintenance.

6. Constant need to update and upscale the design and utility of banking apps and websites

Another key challenge faced by the different banks with respect to promotion of e-banking services is the constant need to update, upgrade and re-design the different banking apps as well as websites, in order to meet the ever-changing needs and demands of their customer base. Being a technology-based service offering sector, e-banking carries with it an unforgiving burden of needing to be extremely flexible, to be able to mould itself comfortably to the requirements of the changing times and evolving technological advancements. This is necessary to remain relevant in the market and stand a chance against competitors. The various apps and websites are therefore undergoing a continuous state of minor as well as major changes, mainly to

adapt, offer innovative solutions, enhance the simplicity of operations and elevate the convenience of the users.

7. Inadequate efforts toward the development of efficient customer relations practices

The findings of the present study indicated that many of the banks often do not provide specialised training to their employees for understanding and navigating the e-banking services. This can lead to reduced efficiency when communicating with the customers and addressing their various grievances related to the different e-banking services. The challenge for the banks is in acknowledging the importance of e-banking services in the present-day context and upgrading their systems to allow for the accommodation of the increasing number of customers with grievances related to the use of e-banking services. Investing in specialised employee training programs and instituting friendlier, more efficient customer relations practices in their institutions can go a long way in achieving better satisfaction rates.

8. Cybersecurity risks

Even though the level of cybersecurity risks related to e-banking services has reduced significantly over the last few years, the challenge to completely eradicate this menace continues to plague the banking sector. Since these security threats often lead to major financial losses for the bank customer, it is the duty of the different banks to continue to diligently monitor, assess and address the various cybersecurity risks which may arise from time to time. Some efforts in this respect may be done by way of conducting educational and informative campaigns to warn customers about the different ways in which scammers may try to access their accounts on different e-banking platforms, while also simultaneously working to come up with innovative measures to upgrade and fortify their internal security systems for enhancing the protection against cyber-attacks.

5.5 E-Banking Problems and Challenges Faced by the Bank Customers

The e-banking sector is continuously growing, expanding and improving. There have been significant developments taking place in the e-banking sector in Nagaland. The improvement in the overall state infrastructure, though limited, has no doubt made a positive impact on the growth of the e-banking sector in the state. The rate of digital deepening across the districts is making great progress. Despite its growth, the e-banking services continue to be marred by issues, the existence of which cannot be completely eradicated. The problems faced by bank customers when using the different e-banking services are varied in nature, such as:

1. Problems related to security issues

There seems to exist a prevailing sense of fear among bank customers when it comes to perceived risks of security involved with e-banking transactions and operations. *Many customers are fearful of falling prey to various scams, fraudulent activities or losing their hard-earned money in the process of completing an online transaction* (Bhai, 2018)⁵⁴.

2. Problems related to privacy issues

Bank customers continue to be wary of potential identity theft, as e-banking usually requires the disclosure of private information in order to access and make use of their services. *This increases the sense of vulnerability and discomfort among users, even after repeated assurances from the banks as the fear of having their information stolen or misused overshadows the benefits of e-banking services* (Bhai, 2018)⁵⁵.

⁵⁴ Bhai, L.P.S. (2018). E-banking in India- problems and prospects. *International Journal of Current Engineering and Scientific Research*, 5(1), 77-81.

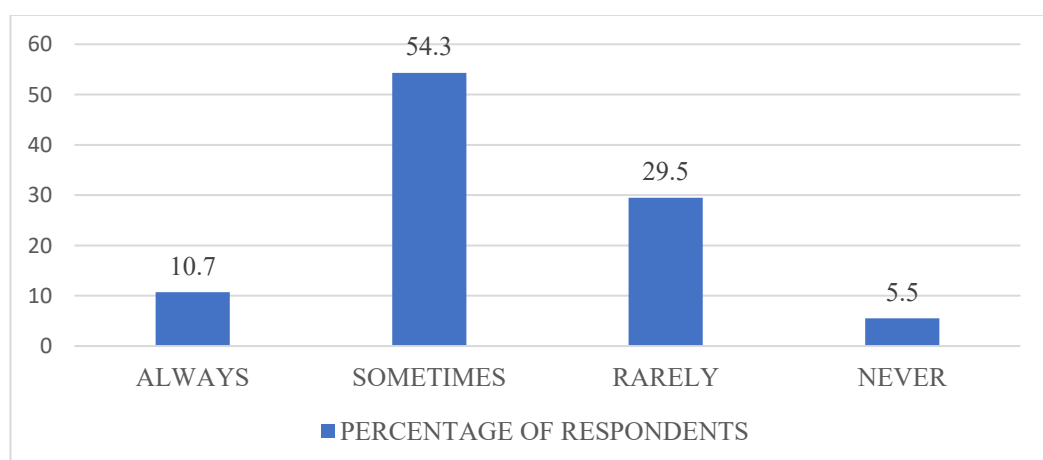
⁵⁵ Bhai, L.P.S. (2018), op cit.

3. Lack of awareness and knowledge about e-banking services

Due to the wide range of service categories and sub-categories under the e-banking banner, the possibility of being aware of each and every service in a thorough manner is difficult for the customers. On the other hand, on the part of the different banks, the large, segregated nature of their customer bases heightens the challenge for the banks to reach each and every customer for the purpose of educating them about e-banking services. Many customers remain ignorant of awareness drives/camps, or simply do not avail themselves of the opportunities to attend these. Customers seem to lack in-depth awareness about the various dimensions of e-banking services, which can be found within each service category, wherein certain features/facilities exhibit very low awareness levels among the customers.

The primary data collected from the questionnaire survey reveal that many bank customers remain unaware of the different forms of awareness and information advertisements or campaigns regarding e-banking services. Although interview findings suggested that all banks carry out numerous activities of this nature, the impact of their efforts evidently remains low. So, this means that awareness about e-banking services is not necessarily influenced by the awareness campaigns of the banks.

Chart 5.5: Frequency of Encountering E-Banking Awareness Ads/Campaigns by the Bank Customers



Source: Primary Data

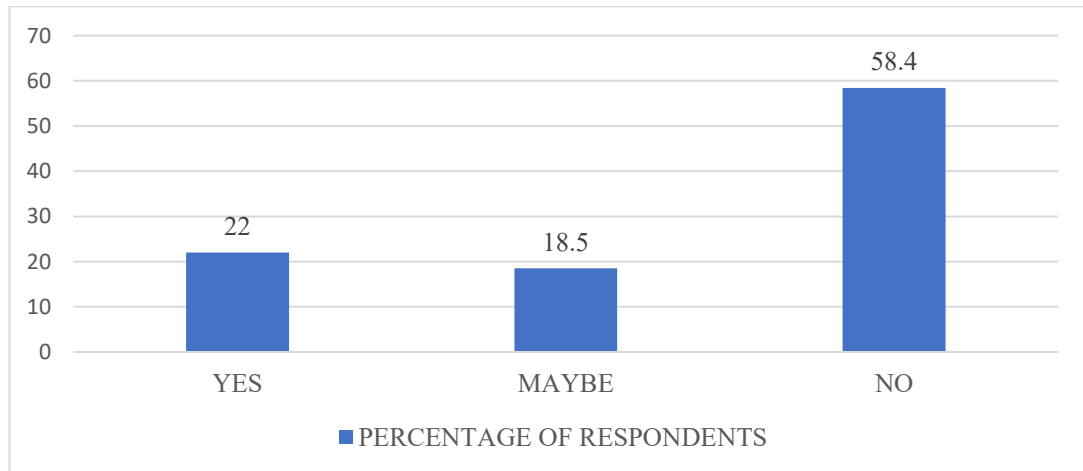
Chart 5.5 shows that 54.3% of the bank customers confirm coming across such ads/campaigns from time to time, while about 29.5% say that they rarely ever come across such efforts by any bank. Another 5.5% have not encountered any such ads/campaigns in their lifetime. This indicates that although banks may be carrying out awareness campaigns regularly, the same are not reaching a bulk of their customer base, implying that these efforts are often unable to deliver the intended impact on the general public. This may be a contributing factor to the lack of awareness and knowledge regarding many different e-banking services and facilities.

4. Difficulty in understanding instructions

Bank customers come from all walks of life. While some are highly educated and well-off, others may even be illiterate or without any formal education. The exposure to technology is also widely varied. The cognitive abilities and comprehension skills also differ to a great extent from one person to another. There are old as well as young customers, urban and rural customers and so on. Therefore, all these factors lead to differences in the customers' ability to make sense of and properly understand the instructions given to navigate through the process of executing even simple tasks on the e-banking services platforms.

Due to this, it may cause undue stress and anxiety for the customer and create a significant deterrent in the adoption or usage of e-banking services. Although the banks put in great effort to simplify all processes related to e-banking, the problem continues to persist. Therefore, it is in the interest of both parties for the banks to put in renewed efforts to educate and inform the customers about the various e-banking services and also provide the basic technical know-how on how to utilise these facilities to improve the overall customer experience when using e-banking services.

Chart 5.6: Percentage of Respondents Approached by Bank Officials for E-Banking Education/Awareness Purposes



Source: Primary Data

From observing the data projected in Chart 5.6, it is found that a high percentage of bank customers (76.9%) have little, vague or no recollection of real-life experiences concerning being approached by any bank officials for the purpose of educating them regarding the different e-banking services. This data suggests that there exist certain gaps in the operational practices of the present banking institutions, particularly with regard to imparting the necessary knowledge and information about e-banking services to their customers. Adopting a more proactive approach in customer orientation and education about the different e-banking services and facilities may significantly improve the customers' overall comfort and attitude towards e-banking adoption as well as usage in the long run.

5. Technical failures and systematic inconsistencies

The e-banking sector is not a stand-alone industry. It relies heavily on a robust infrastructure composed of internet connectivity, website design/development agencies, IT professionals, ground maintenance workforce, electronic & smart appliances technology and many more. As a result of this heavy dependence on external agencies, the overall quality of e-banking services can be compromised if any degree of inconsistency arises among these factors.

The primary data collected revealed that common problems faced by the customers include delays in response time for processing transaction requests on the different e-banking platforms. Many times, faulty technical set-ups, software or database issues can cause e-banking system crashes which may lead to major disruptions, inconveniences or even losses, leading to lack of confidence in the e-banking system.

Another primary problem related to e-banking services can be found in non-performing ATMs, arising as a result of lack of maintenance. Customers are often left disgruntled and dissatisfied when they visit ATM kiosks only to find the device not working or that there is insufficient cash to carry out the customers' requests. Issues with the connectivity can also cause major inconveniences in the e-banking sector. In Nagaland, there exists significant unevenness in the quality, speed and coverage of internet and/or telecom services. Given that the main delivery channel for the majority of e-banking services is through the internet, the connectivity problem becomes a bigger issue for both banks and customers. Experiencing issues with connectivity when carrying out e-banking transactions can cause frustration, anxiety and even have varying degrees of adverse financial implications on the bank customers.

6. Inadequate e-banking infrastructure

At times, bank customers may be willing to use e-banking services; however, if the required facilities are not available to them, then this situation restricts the customers' ability to use the e-banking services. To avoid this, the setting up of a widespread e-banking infrastructure within the state is necessary. Business establishments, offices, educational institutions, hospitals and the like should be encouraged to become equipped with the basic e-banking enabling facilities, such as setting up internet banking and mobile banking facilities, QR codes, POS devices, UPI-enabled payment facilities, to be able to give the customers the choice to use the different e-banking services. The different banks need to contribute more significantly towards facilitating this transformation to take place in the state, so that their customers are not faced with the problem of having e-banking services that cannot be fully utilised.

7. Inability to procure electronic devices for e-banking usage

The different banks offer their services to all customers irrespective of their socio-economic background. While some e-banking services like ATMs, bank card services, etc, can be used without requiring the customers to make any additional arrangements on their end, services like mobile banking can only be carried out on a portable electronic device, usually smartphones. This implies that many customers who do not own a smartphone or are unable to afford one will be deprived of the services. This problem is more common in the remote rural areas, where a majority of the population are economically disadvantaged. Such situations lead to a significant reduction in the usage of certain e-banking services, thus harming the entire sector.

8. Insufficient customer support services

E-banking services offer the advantage of allowing their users to access banking information and carry out multiple banking-related transactions remotely. While this feature makes it very convenient on several occasions, the lack of human element in the process accounts for some disadvantages as well, which is most evident in the customer grievance redressal mechanism of e-banking services. Though pre-programmed software and AI-enabled chatbots have been employed to handle day-to-day customer grievances, most times these measures are not enough to give the assurance and satisfaction that the customer needs. Helplines can help resolve some escalated issues, but these also take time and may not produce the desired outcome for customers. Serious complications and cases related to e-banking services may require the customers to commute to their bank branch for it to be resolved. This results in increased dissatisfaction among the customers.

There is also a lack of ready help and assistance available to the e-banking users in terms of educating them, giving proper instructions and designated helpdesks. This leads to a challenge for the bank customers, especially those who have trouble navigating through the various e-banking nuances. Customers' queries and grievances related to e-banking services need to be handled promptly and efficiently. Due diligence should be given to keep proper grievance redressal mechanisms in place so that customers do not face problems when trying to place requests, enquiries and grievances related to the services.

5.5.1 Analysis of primary data for identification of challenges faced by customers

In the present study, the respondents were asked to identify the problems they encountered while using e-banking services and indicate the frequency of such problems based on their personal experiences. A 5-point ordinal scale was used, where 1= Never, 2= Rarely, 3= Often, 4= Very often, and 5= Always. From the pilot study, 15 major issues related to e-banking services were identified as the parameters for analysis. The data were analysed using the weighted mean for all 15 parameters. By comparing the mean score of each parameter against the overall weighted mean, the problems were classified as either 'high' or 'low' category, in terms of frequency of occurrence.

Table 5.1: Analysis of Types and Frequency of Problems Faced by Respondents with Regard to E-Banking Services

Particulars	1	2	3	4	5	Mean	Decision
Security issues	77	222	33	9	3	1.95	Low
Privacy issues	93	192	47	9	2	1.94	Low
Lack of awareness	32	192	90	20	9	2.36	High
Lack of knowledge	48	207	68	16	5	2.19	Low
Difficulty understanding instructions	56	212	56	14	6	2.13	Low
Poor response time	16	222	86	13	6	2.33	High
System crashing	18	197	105	21	2	2.39	High
Non- functioning ATMs	14	142	134	49	5	2.68	High
Inadequate cash in ATMs	13	113	155	54	8	2.80	High
Unavailability of required facilities	22	222	83	16	1	2.28	Low
Connectivity issues	4	129	154	48	9	2.79	High
Difficulty in availing necessary devices	37	217	66	23	-	2.22	Low
Grievance redressal related	21	198	92	27	4	2.40	High
Unauthorised/unintentional transactions	150	162	25	7	-	1.68	Low
Lack of assistance	47	167	87	32	10	2.39	High
Weighted Mean	2.30						

Source: Primary Data

In Table 5.1, it was observed that the respondents experienced eight identified problems regularly; therefore, these were categorised as ‘high’ frequency issues that need urgent attention from banks, for taking proper corrective measures. Most frequent issues experienced by respondents are related to ATM usage. Proper maintenance and upkeep of ATMs need to be carried out by the banks. The results also reflect the need to improve customer relations policies related to assistance and grievance redressal. Other key problems requiring attention are concerned with increasing customer awareness of e-banking services, addressing issues related to connectivity and technical maintenance of websites, apps and related systems. Responses indicated a high probability of encountering system malfunctions and site crashes.

The findings of many research studies conducted showed that security and privacy issues were the major deterrents for e-banking adoption. However, while some problems related to bank customers’ security and privacy continue to persist, the present study found that encountering such problems has decreased in recent years. This is a significant development and shows how the e-banking sector is keen to address customers’ problems seriously.

Encountering problems related to lack of knowledge or technical know-how falls under the ‘low’ category, which is a good indication that bank customers now have better means and capacity to attain the necessary knowledge and adequate skills to navigate, operate and understand the e-banking operations in a better and more comfortable manner. This may be the result of an increase in the number of awareness drives, sensitisation programs, prolonged exposure to the system or may even be indicative of a growing sense of interest and acceptance of e-banking services in Nagaland.

The findings also revealed that bank customers do not face many problems or issues relating to the lack of availability of basic ground facilities and infrastructure for effective usage of e-banking services, which indicates that these facilities are improving greatly, especially within the semi-urban and urban centres

of Nagaland. Ensuring the availability of e-banking facilities encourages higher usage rates and leads to higher satisfaction as well.

If e-banking-related issues are not addressed effectively, they can lead to increased customer frustration, negative perceptions, and lower satisfaction, ultimately affecting future adoption. Regardless of the frequency with which these problems are encountered, banks must continuously implement corrective measures to maintain service quality and uphold the integrity and reputation of the banking sector. This process of monitoring and improving e-service quality must be ongoing, as many issues persist despite administrative efforts. (Raj et al., 2023)⁵⁶.

⁵⁶ Raj B. K. et al. (2023). A study on awareness of e-banking service among customers in India. *Journal of Informatics Education and Research*, 3(2), 469-479.

CHAPTER VI

SUMMARY AND CONCLUSION

6.1 Introduction

E-banking services have assumed a pivotal role in the development of the banking industry and our economy. In the present chapter, the major findings made based on the objectives of the study and hypotheses laid down, will be summarised, s to attempt to highlight the status of the banking industry and e-banking sector in the state, the status of awareness levels, perception, preferences and satisfaction levels of e-banking services and also bring to light some of the key challenges which are being faced by the e-banking sector and its main stakeholders.

The present chapter will also include possible suggestions for consideration and surmise the major conclusions drawn from all the findings.

6.2 Summary of Key Research Findings

The major findings derived from the data analysis are presented in detail below.

6.2.1 Overview of e-banking services in India

E-banking services encompass the entirety of banking services being delivered through electronic and digital means over the internet or other telecommunication networks. It is basically divided into four main categories: ATM services, Internet Banking services, Debit/Credit Cards services and Mobile Banking services.

In our country, a brief look at the e-banking timeline reveals the evolution of the sector (from 1980s till present) in three distinct phases, where, Phase I (1980s-1990s) saw the initial setting of the foundational infrastructure for introduction of the e-banking facilities, Phase II (1990s-2010s) marked introduction of major e-banking services and also enabled many innovative developments to take place, finally Phase III (2010s- present) has brought about several key developments in the e-banking

sector. This phase is characterised by renewed interest in e-banking services, particularly in the digital service offerings, from both the government and individual customers alike.

The e-banking sector in India has proven to be a pivotal driver with regard to the country's overall socio-economic goals. Its value can be seen in the areas of sustainability, societal inclusivity, bridging economic divides and attainment of the digital economy goals.

6.2.2 Nature of e-banking usage in Nagaland

The findings of the present study in relation to e-banking usage pattern, trends and behaviour are highlighted below:

6.2.2.1 E-banking usage rate in Nagaland

The present study shows that there is a high e-banking usage rate in Nagaland, where 86.25% of the total banking customers in the state are active e-banking users.

6.2.2.2 Demographic profile of e-banking users in Nagaland

The primary data collected from the respondents in the present study with regard to the following socio-economic variables for e-banking users are given below:

1. Gender

There seems to be no significant variation in the number of e-banking users in Nagaland on the basis of gender. The primary data collected revealed that the percentage of male users was 48.4% while female users accounted for 51.6% of the total.

2. Age

The majority of the e-banking users in Nagaland belong to the 20-30 years age group (48.4%), followed closely by the 31-40 years age group (35.4%). This indicates that most of the e-banking users are younger adults. The percentage of users in the other age groups are 3.4%, 11.9% and 0.9% under the 'below 20 years', 41-50 years and 'above 50 years' categories, respectively. Evidently, most bank customers under the senior citizens category don't use e-banking services actively.

3. Educational Qualification

The primary data collected shows that most e-banking users in the state have higher educational qualifications; those with undergraduate degrees account for 35.1% users, and respondents having postgraduate degrees account for 36.5% of the e-banking users in Nagaland. This proves that e-banking usage in the state is dominantly more popular among those who have acquired higher education (71.6%).

HSLC qualified users stood at 6.4% and HSSLC qualified users stood at 11.3% only. The study also revealed that 10.7% of the respondents fall under the fifth category, i.e., 'Others', for educational qualification. This statistic may correspond to those users who have acquired degrees/diplomas in other, more non-conventional avenues of technical education, and may also include those whose qualifications fall below the HSLC level of education.

4. Occupation

75% of the total e-banking users in Nagaland are individuals employed in different capacities. Here, 13.6% belong to the 'self-employed' category, 26.4% are employed in the private sector and 31% government employees. The statistic also includes another 4.1% whose employment does not fall under any of the above categories.

About 18.6% of the e-banking users in the state are students, while only 6.4% of the users fall under the 'unemployed' category. This data suggests that employment status can have some influence on the e-banking usage rate.

5. Marital Status

The percentage of unmarried e-banking users (57.7%) is higher than the percentage of married e-banking users (42.3%).

6. Monthly Income

Interestingly, when looking at the e-banking usage rate on the basis of the monthly income variable, the data collected showed that the majority of the e-banking users earn less than Rs. 20,000 monthly (43.5%). The next highest usage rate was reflected in the Rs.20,000-40,000 monthly category of users (29.6%). This meant that 73.1% of the total e-banking users earn below Rs.40,000 monthly.

Whereas, the percentage of users was 16.5% for those earning between Rs. 40,000- 80,000 monthly, while only 10.4% of users belonged to the category of individuals earning above Rs. 80,000 monthly.

6.2.2.3 Mode of introduction to e-banking services

The present study reveals that e-banking users in Nagaland tend to utilise a more informal route of introduction to the different e-banking services, where 38% are found to have started using the services through recommendations made by close family and friends, while another 36% started using the services on their own, out of sheer necessity of the situation. Another 3% of the users were introduced to the services on a simple and casual trial basis. The findings further indicate that only 23% of the total users were introduced to the services through formal interaction and invitation from bank officials.

6.2.2.4 Types of e-banking services in use

According to the findings of the present study, it is apparent that most e-banking users in Nagaland tend to use a combination of different e-banking services as opposed to using just one type. The most popular combination is that of 'ATM+ debit/credit cards+ mobile banking', which registered a total users' percentage of 53.5%, while about 27.2% of the users utilise all four major e-banking service categories.

The ATM services category is the most widely used e-banking service category and registered approximately 98.6% usage rate, followed closely by the mobile banking service category with 96.9% usage rate. Debit/Credit cards usage rate stood at 83.6%, whereas internet banking services have the lowest usage rate at 31% only.

6.2.2.5 E-banking usage time span

The primary data collected revealed that e-banking usage in Nagaland saw a significant increase in the 11-15 years only. The duration of e-banking usage above 15 years is very low. The popularity of ATM usage showed a decline in the last five years, whereas significant growth in terms of mobile banking usage is seen during the same

time period, with an increase of approximately 280% usage rate within a span of 10 years.

6.2.2.6 Frequency of e-banking usage

Overall, the majority of respondents reported using e-banking services on a monthly basis (43.1%) and weekly basis (39.7%), while only 15.2% use them daily, and a negligible share falls in the ‘others’ category.

Based on gender, it is found that female users generally use the services more frequently, with the majority, 74% of female users, using the services at least once every week. On the other hand, the majority of male users are monthly users (41.2%). However, daily male users are slightly higher than their female counterparts at 20% and 17% respectively.

Considering the different age groups, it is found that those belonging to the 21-40 years category use e-banking services most frequently. Here, 63.2% of the ‘21-30 years’ age group and 50.7% of the ‘31-40 years’ age group use the services at least on a weekly basis. Those belonging to the ‘below 20 years’ and ‘41-50 years’ age groups use the services on an occasional basis, with the majority, 66.6% and 52.5% registering as monthly users respectively. 100% of the e-banking users belonging to the ‘above 50 years’ age group use the services on a monthly basis only.

Using educational qualifications as a parameter, it is found that e-banking users with higher educational qualifications use the services more frequently, wherein at least 50.8% and 65.6% of the users with undergraduate and postgraduate degrees, respectively, are found to use the services on a weekly basis. The majority of users with HSSLC-level education and below are monthly users.

As per occupational status, users under active employment use the services more frequently than those who are unemployed. The self-employed users are seen to utilise the services most frequently, with 21.3% daily users and another 44.7% weekly users of e-banking. This data reveals that the utility of e-banking services is well-suited for entrepreneurial undertakings and those with active work schedules.

Again, it was found that unmarried users generally use the e-banking services more frequently than married users. At least 60% of the unmarried users use the services on a weekly basis, whereas the majority of the married users (49%) are monthly users only.

On the basis of monthly income, it was found that individuals earning higher salaries/wages use the e-banking services more frequently than those who earn less. The highest percentage of daily users was registered under the category of users earning a monthly income ranging between Rs.60,000- Rs. 80,000 (42.8%), followed by those earning above Rs.80,000 per month (25%).

6.2.2.7 Approximate monthly expense through e-banking channels

The majority of monthly spending through e-banking channels among the users in Nagaland is less than Rs.10,000 per month. The highest volume of transactions is observed for the ATM cash withdrawals category, where 44.3% users withdraw up to Rs. 50,000 every month. Even though e-banking channels may be used frequently for online and offline shopping purposes, most users do not spend more than Rs.10,000 p/m for such activities. The use of e-banking channels for transacting payments related to interest/premium/EMI remains low, with 58.8% of the users classifying such payments under the 'not applicable' category.

6.2.2.8 Status of e-banking services among non-users

The findings from the data analysis revealed that the non-users continue to remain largely uninterested and unmotivated about trying new e-banking services or making enquiries about them. However, it also showed that 60.3% of the non-users are not willing to open new bank accounts in those banks which do not offer e-banking services. This may be an indication that there is potential of conversion of the non-users into users of e-banking services in the future.

6.2.3 Status of banking sector and e-banking services in Nagaland

The findings of the present study in relation to the scenario of the banking sector and e-banking services are highlighted below:

6.2.3.1 Banks operating in Nagaland

There are a total of 26 banks operating in the state. The 12 public sector banks make up the majority (46.2%), followed by 10 private sector banks (38.5%). There is only one each for regional rural banks and cooperative banks in the state, while there are two operative banks under the small finance banks category. There is a total of 249 bank branches operating in Nagaland.

The number of public bank branches stands at 132 and private bank branches at 74. There are 7 small finance bank branches, 24 cooperative bank branches and 12 regional rural bank branches.

6.2.3.2 Bank branch network

The bank branch network in the state is one characterised by vast unevenness in its distribution. While the reach of the banking sector is inclusive of all the 17 districts of the state, there exist stark irregularities in its composition. The present study shows that of the 249 existing bank branches, 117 (46.9%) are located in the two districts of Kohima (56) and Dimapur (61).

Nine districts have less than 10 bank branches, namely- Kiphire (4), Longleng (4), Niuland (2), Noklak (2), Peren (6), Phek (9), Shamator (2), Tseminyu (3) and Tuensang (7). The remaining districts of Chumukedima (25), Mokokchung (26), Mon (15), Wokha (14) and Zunheboto (13) share the remaining 37.4% of the total bank branches.

Moreover, the findings also suggest that the distribution of the existing bank branches is concentrated within the urban (17.7%) and semi-urban (48.2%) regions of the state. Only 34% of the total bank branch network extends to the rural areas. The nature of this distribution highlights a certain degree of neglect of the state's rural population, which makes up about 70% of its total.

6.2.3.3 Unbanked blocks in Nagaland

In Nagaland, there are 74 Rural Development Blocks (RDBs), of which 22 RDBs remain unbanked presently. These unbanked RDBs are located in the districts of Dimapur, Kohima, Kiphire, Mon, Mokokchung, Phek, Tuensang, Wokha and

Zunheboto. However, the present study found that measures are being taken to initiate banking efforts in these blocks, and the allottee banks have been assigned to each RDB. The State Level Bankers Committee (SLBC) also continues to assess the progress of these initiatives diligently and routinely.

6.2.3.4 Presence of RBI in the state

An RBI sub-office was set up in Kohima on 13th June, 2025. This is the first instance of the central bank's physical presence in Nagaland. The sub-office operates with 4 major departments, namely- Financial Inclusion and Development Department (FIDD), Consumer Education and Protection Cell (CEPC), Market Intelligence Cell and Human Resource Management Department (HRMD).

6.2.3.5 Financial literacy and financial inclusion efforts

Nagaland continues to experience renewed efforts towards the promotion of financial literacy and inclusion. According to the SLBC report of FY 24-25, a total of 16 Financial Literacy Centres (FLCs) were set up and more than 400 camps for financial literacy were conducted, where 7136 (approx.) participants were recorded.

In the financial inclusion context, the impact of central schemes like Pradhan Mantri Jan Dhan Yojna (PMJDY), Bank Mitra programme, Pradhan Mantri Mudra Yojna (PMMY) and Sukanya Samriddhi Yojana (SSY) have been quite notable, displaying undeniable success with the number of beneficiaries reaching up to lakhs of individuals across the state.

6.2.3.6 E-banking services status in Nagaland

All the four major e-banking service categories are found to be operational in the state.

6.2.3.7 ATM network in Nagaland

Similar to the bank branch network, Nagaland's ATM network also displays a highly skewed distribution with a high concentration of ATMs (66%) in the districts of Kohima (26%) and Dimapur (40.2%). The remaining 34% of total ATMs in the state are shared by the other 15 districts.

Again, like the bank branch network, the distribution of ATMs is centred within the urban (36%) and semi-urban (48.6%) areas, while only 59 ATMs are set up in rural areas of the state.

6.2.3.8 Progress of e-banking and digitalization efforts in Nagaland

The findings of the present study reveal that the e-banking sector is making steady progress in the state.

Bank reports for FY 2024-25 show the following figures-

- BHIM UPI transactions valued at 3827691 (lakh rupees).
- BHIM AADHAAR transactions valued at 198.52 (lakh rupees).
- IMPS transactions valued at 8312732 (lakh rupees).
- Debit & Credit Card transactions valued at 68383.26 (lakh rupees)
- USSD transactions valued at 22140.02 (lakh rupees)

The state's banking sector is also making steady strides in its efforts to develop the digital ecosystem. Kohima is the only district that has attained 100% digitalization status, and several other districts are following closely, with Chumukedima, Kiphire, Meluri, Niuland, Phek, Shamator, Tuensang, Tseminyu and Zunheboto, all registering a 90% and above digitalization rate. The digital ecosystem in the districts of Dimapur, Mokokchung, Mon and Peren are wavering in the 80%-90% threshold, whereas only Longleng, Noklak and Wokha districts are shown to have achieved below 80% digitalization rates.

6.2.4 General awareness level of e-banking services in Nagaland

It was found that Nagaland registers approximately 86% of e-banking users, which leads to the assumption that the general awareness of e-banking services is positive for this category of statistics. However, among the 14% bank customers who are classified as non-users of e-banking services, data analysed from the present study indicated that awareness of e-banking services is positive for 72% of the respondents under this category.

Thereby, suggesting that awareness of e-banking services is generally high across the state; however, the same does not necessarily translate into active usage of the services among bank customers.

6.2.5 Awareness levels of the major e-banking service categories

The present study revealed that awareness levels for each major e-banking service category were registered above 90%, where awareness levels for ATM services, internet banking services, credit card services, debit card services and mobile banking services were registered at 99.7%, 95.5%, 96.8%, 99.1% and 96.2% respectively.

The awareness level is therefore highest for ATM services, followed closely by debit card services. Whereas the awareness level is lowest for internet banking services.

6.2.6. Awareness levels of key facilities under ATM services

Although the general awareness level of ATM services is high, the awareness levels for the different facilities available under the ATM service category were found to be inconsistent. While the awareness for facilities like cash withdrawal (99.7%), fund transfer (83.1%) and cash deposit (83.7%) remains high, i.e., above 80%, it is observed that other facilities like utility bill payment and loan application registered low awareness levels at 76.6% and 50.9% respectively.

6.2.7 Awareness levels of key facilities under debit/credit card services

The awareness level for debit/credit card service facilities was found to be consistently high throughout, with major facilities such as online shopping using debit/credit cards, online bill payment and making payments at POS centres registering awareness levels of 97.9%, 91.9% and 81.3% respectively.

6.2.8 Awareness levels of key facilities under internet banking services

The findings of the present study showed that the highest degree of variations in the awareness levels of the key facilities were registered for the internet banking category of e-banking services. Additionally, it was also revealed that although general

awareness of internet banking services was high, in-depth awareness about the different facilities available under this category was low throughout (below 80%).

Internet Banking facilities such as RTGS, ECS and IMPS registered a lower percentage of awareness, which were 37.6%, 31.6% and 39.8% respectively. These findings suggest that the high awareness levels for ‘internet banking’ may be attributed to the widespread use of the term in a generic capacity. It also suggests that many bank customers fail to avail themselves of or comprehend the utility of these facilities and therefore tend to become indifferent to their existence.

6.2.9 Awareness levels of key facilities under mobile banking services

The awareness levels of the different facilities found under the mobile banking service category present a scattered range and variation. Mobile banking apps and e-wallets have high awareness levels at 98.5% and 90.7% respectively. The awareness for UPI services is also on the higher end (87.1%); however, the remaining facilities, such as SMS banking, loan application, availing insurance and carrying out investment activities, all registered awareness levels below 80%.

Lastly, the USSD and AePS facilities only registered 29% and 22.7% awareness levels respectively, suggesting that the majority of users are unaware of these facilities. However, the reason for this stark contrast in awareness level for USSD facility may be due to the improving conditions of internet connectivity in Nagaland, which results in bank customers opting for alternative facilities that they may consider more convenient, thereby affecting their interest in learning about or availing the USSD, which primarily works on a rudimentary telecom network.

6.2.10 Results of One Proportion Z-Test for testing of Hypothesis I (H1)

Hypothesis I (H1): There is a high level of awareness of e-banking services in Nagaland, which was tested using a one-proportion Z-test in Chapter III of the present study.

In this context,

H₀: The awareness level of e-banking services in Nagaland is equal to the threshold level of 80%

H₁: The awareness level of e-banking services in Nagaland is greater than the threshold level of 80% i.e., high awareness.

The results of the test conducted on all four major e-banking service categories showed that the calculated z-values were all greater than the tabulated z-value at 5% significance level, i.e., 1.645. [z-values: ATM (2.5), internet banking (8), debit card (2), credit card (2.5) and mobile banking (8)].

Therefore, the alternative hypothesis was accepted for all cases, thus establishing that Hypothesis I (H₁) stands to be true.

6.2.11 Significant findings from Pearson's Chi-Square tests conducted with regard to awareness levels of e-banking services

Pearson's Chi-Square Test was also conducted on all major e-banking service categories, using the different key facilities under each category as parameters, to determine if any significant difference existed with regard to awareness levels of the different e-banking service categories on the basis of demographic factors such as gender, age, educational qualification and occupation. In this regard, the following hypotheses were constructed as follows:

1. **Hypothesis 3 (H₀₃)**- there is no significant difference in awareness levels of e-banking services with respect to gender
2. **Hypothesis 4 (H₀₄)**- there is no significant difference in awareness levels of e-banking services with respect to age
3. **Hypothesis 5 (H₀₅)**- There is no significant difference in awareness levels of e-banking services with respect to educational qualification
4. **Hypothesis 6 (H₀₆)** - There is no significant difference in awareness levels of e-banking services with respect to occupation

Out of the 116 tests conducted, it was found that for 21 cases, the calculated p-values were lower than the significance level of 0.05, thus, the null hypothesis was rejected for these cases, suggesting the existence of significant difference in awareness levels for certain e-banking services and facilities.

The results from the tests revealed the following:

1. There exists significant difference in awareness level for USSD services based on gender. (p-value= 0.021)
2. There were significant differences in the awareness levels for ATM services (p-value= 0.000), fund transfer facility under ATM (p-value= 0.016), utility bill payment facility under ATM (p-value= 0.042), NEFT (p-value= 0.000), ECS (p-value= 0.015) and RTGS (p-value= 0.014) facilities under internet banking based on age.
3. There were significant differences in the awareness levels for fund transfer (p-value= 0.000) and cash deposit (p-value= 0.005) facilities under ATM, credit card services (p-value= 0.015), online shopping using debit/credit cards (p-value= 0.003), NEFT (p-value= 0.000), RTGS (p-value= 0.014) and IMPS (p-value= 0.039) facilities under internet banking, based on educational qualification.
4. There were significant differences in the awareness levels for fund transfer facility under ATM (p-value= 0.004), NEFT (p-value= 0.000), RTGS (p-value= 0.000), IMPS (p-value= 0.002) and ECS (p-value= 0.000) facilities under internet banking, mobile banking services (p-value= 0.032) and UPI facility (p-value= 0.031) under mobile banking, based on occupation.

Therefore, it can be concluded that demographic factors such as gender, age, educational qualification and occupation can have varying degrees of influence on the awareness level of different e-banking services.

6.2.12 Perception of major e-banking service categories in Nagaland

The present study attempted to determine the nature of perception (whether positive or negative) of the e-banking services, using a 3-Point Likert Scale to measure the extent of match-rate between customers' experience and their expectations based on 13 service parameters. A threshold of 80% match-rate between customers' experience and expectations was used as the criterion for positive perception.

The analysis of the data revealed that the overall perception of the different e-banking service categories was consistently positive across all the parameters used. The mobile banking service category registered the highest degree of positive

perception, and the debit/credit card service category registered the lowest degree of positive perception.

The degrees of positivity in perception across the 13 parameters were also of a varying nature for all four major e-banking categories.

It was thus determined that there exists a strong positive perception of e-banking services in Nagaland; however, the degrees of positivity of perception varied across the different service categories and also with respect to the different parameters. This indicates that some e-banking service categories perform better at understanding and delivering services that meet the standards of customers' expectations.

Additionally, data was also collected to analyse the perceived value, quality and usefulness of e-banking services by the users. The results showed that 84.9% of existing users indicated the likeliness to continue using e-banking services in the future, while 81.2% revealed that they will recommend the services to other people. Another 86.4% of the respondents also reported to having experienced benefits from the use of e-banking services, and 79.1% indicated that they will not be opening bank accounts which does not offer e-banking services.

All these findings suggest that there is a high customer retention rate at present and also establishes the positivity in expected growth rate of e-banking users in the future. Moreover, 53.9% of the respondents expressed willingness to try or attempt to use new e-banking services, while another 51.2% expressed their willingness to use e-banking services for new purposes. All these data are indicative of prolonged e-banking usage and high perceived value, quality and usefulness of the services by the bank customers.

6.2.13 Match-rate between experience and expectations for different e-banking services

It was found that the average match-rate between customers' experience and expectation was highest for mobile banking services (93.47%) and lowest for debit/credit card services (89.1%). The same was registered as 90.92% and 89.64% for internet banking services and ATM services, respectively. Thereby indicating that all

categories of e-banking services perform relatively well with regard to designing services in accordance to customers' needs, demands and expectations.

From Chart 3.9, we can observe the parameter-wise match-rate between customers' experience and expectation across the different service categories. The findings reveal that ATM and debit/credit card service categories perform rather poorly when compared to mobile banking services, as they secured the lowest match rates across all 13 parameters, while the latter secured the highest match rate for most of the parameters.

6.2.14 Analysis of preferences for different e-banking services

The present study revealed that for 58.8% of the e-banking users, the most preferred category of e-banking is mobile banking services. The different e-banking services, when ranked according to users' preferences, show that the services follow the order of mobile banking, internet banking, ATM and debit/credit cards (i.e., from most preferred to least preferred).

The findings also showed that nowadays, bank customers avoid visiting bank branches personally, as 62.6% regarded it as their least preferred mode of availing banking services.

6.2.15 Ranking of different modes of payment by order of preference

61.6% of the e-banking users mostly prefer to use mobile banking for making payments. The second most preferred mode of payment is through the exchange of physical cash. Only 12% and 5.9% prefer to make payments using internet banking services and debit/credit card services, respectively, while the remaining 0.9% opted for the 'others' option.

Therefore, it is seen clearly that the preference for e-banking services is very high, especially for mobile banking services.

6.2.16 Ranking of different modes of receiving funds by order of preference

The present study found that 79.3% of bank customers prefer to receive money/funds (salary, wages, fund transfer) through bank transfer, which indicates that

the preference for utilisation of e-banking services is very high. Only 17.5% were revealed to prefer getting paid in cash. The preference for receiving money or payments through cheques is extremely low (0.3%).

This data shows that e-banking alternatives are becoming increasingly popular as opposed to physical cash transactions.

6.2.17 Analysis of satisfaction levels of e-banking services

The findings from the present study with regard to the measurement of users' satisfaction levels for overall e-banking usage experiences indicated that 67% were 'satisfied' with the services, and another 22.3% indicated that they were 'very satisfied'.

9.9% of the users remained neutral on their stance with regard to satisfaction, while only 0.6% revealed that they were dissatisfied, and 0.3% as 'very dissatisfied'.

6.2.18 Results of One Proportion Z Test for testing of Hypothesis II (H2)

Hypothesis II (H2): There is a high level of satisfaction of e-banking services in Nagaland. was tested using one proportion Z-test in Chapter IV of the present study.

In this context,

H₀: The satisfaction level of e-banking services in Nagaland is equal to the threshold level of 80%

H₂: The satisfaction level of e-banking services in Nagaland is greater than the threshold level of 80% i.e., high satisfaction.

The results of the test conducted showed that the calculated z-value 4.5, was greater than the tabulated z-value at 5% significance level i.e., 1.645.

Therefore, the alternative hypothesis was accepted, thus establishing that Hypothesis II (H2) stands to be true.

6.2.19 Satisfaction levels of ATM services

The weighted mean score with regard to satisfaction level for ATM services was 3.88 (on a 5-point Likert Scale). This indicated a high level of satisfaction. The

‘convenience’ parameter under ATM services registered the highest mean score of 4.14, whereas the ‘responsiveness’ parameter registered the lowest mean score of 3.46.

6.2.20 Satisfaction levels of internet banking services

The weighted mean score with regard to satisfaction level for internet banking services was 3.86 (on a 5-point Likert Scale). This indicated a high level of satisfaction. The ‘time-saving’ parameter under internet banking services registered the highest mean score of 4.07, whereas the ‘responsiveness’ parameter registered the least mean score of 3.60.

6.2.21 Satisfaction levels of debit/credit card services

The weighted mean score with regard to satisfaction level for debit/credit card services was 3.81 (on a 5-point Likert Scale). This indicated a high level of satisfaction. The ‘fulfilment’ parameter under debit/credit card services registered the highest mean score of 4.02, whereas the ‘responsiveness’ parameter registered the least mean score of 3.52.

6.2.22 Satisfaction levels of mobile banking services

The weighted mean score with regard to satisfaction level for mobile banking services was 4.04 (on a 5-point Likert Scale). This indicated a very high level of satisfaction. The ‘time-saving’ and ‘fulfilment’ parameters under mobile banking services registered the highest mean scores of 4.25 each, whereas the ‘responsiveness’ parameter registered the lowest mean score of 3.77.

6.2.23 Significant findings from Pearson’s Chi-Square tests and Kruskal- Wallis tests conducted with regard to satisfaction levels of e-banking services

Additional Pearson’s Chi-Square Tests and Kruskal-Wallis tests were conducted on all major e-banking service categories, using 13 service parameters, to determine if any significant difference existed with regard to satisfaction levels of the different e-banking service categories on the basis of demographic factors such as gender, age, monthly income and educational qualification. In this regard, the following hypotheses were constructed as follows:

Hypothesis 7 (H₀₇): *There is no significant difference in satisfaction levels of e-banking services with respect to gender for:*

- ATM Services
- Internet Banking Services
- Debit/Credit Card Services
- Mobile Banking Services

(Parameters tested under each category: Reliability, Cost-Effectiveness, Convenience, Security, Efficiency, Fulfilment, Understandability, Assurance, Accessibility, Time-Saving, Speed of Processing, Responsiveness, and Quality of Service)

Hypothesis 8 (H₀₈): *There is no significant difference in satisfaction levels of e-banking services with respect to age for:*

(Same service categories and parameters as above)

Hypothesis 9 (H₀₉): *There is no significant difference in satisfaction levels of e-banking services with respect to the monthly income level for:*

(Same service categories and parameters as above)

Hypothesis 10 (H₁₀): *There is no significant difference in satisfaction levels of e-banking services with respect to educational qualification for:*

(Same service categories and parameters as above).

The results from the tests revealed the following:

1. There exists a statistically significant difference in satisfaction level with regard to the ‘time-saving’ parameter (p-value= 0.006) of the mobile banking service category on the basis of gender.
2. There exist statistically significant differences in the satisfaction level with regard to ‘convenience’ (p-value= 0.039) and ‘speed of processing’ (p-value= 0.05) parameters of the mobile banking service category on the basis of age.
3. There exist statistically significant differences in the satisfaction levels with regard to ‘accessibility’ (p-value= 0.023) and ‘speed of processing’ (p-value=

0.035) parameters of debit/credit card services, as well as 'reliability' (p-value= 0.043), 'convenience' (p-value= 0.024), 'accessibility' (p-value= 0.029) and 'speed of processing' (p-value= 0.011) parameters of mobile banking services on the basis of monthly income.

4. There exist statistically significant differences in the satisfaction levels with regard to the 'speed of processing' parameter (p-value= 0.037) of ATM services, and 'accessibility' parameter (p-value= 0.047) of internet banking services on the basis of educational qualification.

Therefore, it can be concluded that demographic factors such as gender, age, monthly income and educational qualification can have varying degrees of influence on the satisfaction level of different e-banking services.

6.2.24 Nature of challenges faced by e-banking sector in Nagaland

In Chapter V of the present study, an attempt was made to identify and explore the major areas and reasons giving rise to major challenges that hinder the progress and development of e-banking services in the state. The findings from the study revealed that e-banking services are affected greatly by a wide range of factors, which are both internal and external to the industry.

Additionally, the state of Nagaland, being one where the rural landscape is widespread and the rural population being the majority (70%), it was found that this fact alone was the root cause of a myriad of challenges being faced by the e-banking sector.

6.2.25 Challenges brought about as a result of the rural landscape

The rural population is largely at a disadvantage in terms of both economic and social perspectives. Some of the key challenges brought about as a direct result of the rural majority landscape are as follows:

1. Prolonged priority-based sector development in rural areas:

For a long time, most if not all of the focus was directed towards agricultural development in these areas, thereby often neglecting the introduction and growth of other sectors such as e-banking.

2. Poor infrastructure and connectivity:

The rural villages and areas are marred by an extreme deficit in terms of development of key infrastructural facilities such as road connectivity, telecom and internet connections, which are considered vital for the feasibility of the e-banking sector.

3. Sparse population:

A characteristic of rural areas is the sparsely distributed population within the areas. With a population density of 119 per sq. km, the viability of setting up bank branches and other key infrastructural elements becomes minimal.

4. Looming illiteracy:

In many of the rural regions of the state, there is still widespread illiteracy, especially among the older population. This creates a big challenge for the e-banking sector, as many of the services require basic comprehension skills and understanding of elementary knowledge concepts for proper utilisation

5. Low financial and digital literacy rates:

Knowledge on financial matters in the rural household normally does not extend beyond rudimentary concepts. To add to this, attempts to promote financial and digital literacy are often regarded cautiously and sceptically. As a result, promotion and adoption of e-banking services become exceedingly challenging in the face of these circumstances.

6. Prevalence of poverty:

The rural population struggles under the crippling confines of a vicious poverty cycle, due to the lack of opportunities and availability of facilities to earn a living. Measures to eliminate widespread poverty must be implemented before advocating for the use of e-banking services in such communities.

7. Psychology and mindset of rural population:

Inhabitants of rural areas are often more resistant to change and express high mistrust of new things. Therefore, it becomes a challenge for the banks to build trust and convince these people to try new e-banking services, as the process tends to be very slow and time-consuming.

6.2.26 Major challenges faced by banks

1. Maintenance and technical issues:

E-banking services require the setting up of a complex physical and digital infrastructure to enable the facilitation of the different services. This infrastructure requires diligent and routine upkeep from trained and skilled maintenance and technical personnel, who are hard to come by. Moreover, the majority of the infrastructural elements belong to external agencies, thereby making the sustainability of e-banking services highly dependent on third parties.

2. Identifying and accurately targeting customers unaware of e-banking services:

Accurately identifying bank customers who remain unaware of e-banking services remains a significant challenge. Despite the implementation of awareness campaigns and outreach initiatives, failure to effectively reach the intended target customer group often leads to limited impact. This results in resource wastage, duplication of efforts and sub-optimal outcomes, thereby reducing the effectiveness of such programmes.

3. Lack of enthusiasm among elderly, rural and illiterate customers:

Banks continue to encounter considerable challenges in fostering ample interest, curiosity and adoption of e-banking services, from the sub-group of customers who belong to the older age groups, those from rural areas and individuals with low literacy. This segment often exhibits resistance or hesitation towards digital transactions, resulting in slower adoption rates and under-utilisation of e-banking facilities.

4. Hesitant in adoption and usage of e-banking services:

Many banks continue to face challenges in effectively communicating the benefits of e-banking services to certain customer segments. This is largely driven by the prevalence of pre-existing negative perceptions regarding security risks and innate reluctance to engage with new technology. Bank officials have reported that, despite efforts, successfully transforming customer awareness into active usage remains a hurdle.

Findings from the present study further highlight the gap between awareness and actual usage across different e-banking service categories. This gap is relatively narrow for ATM (awareness-99.7% and usage- 98.8%), debit card (awareness- 99.1% and usage- 89.7%) and mobile banking services (awareness- 96.2% and usage-88.7%). However, a much wider gap exists for credit card services (awareness-96.8% and usage- 34.7%) and internet banking services (awareness- 95.5% and usage-4.5%). This indicates that while customers are highly aware of most e-banking services, trust, security concerns and technology apprehensions act as barriers preventing certain services particularly debit/credit cards and internet banking from achieving higher adoption rates.

5. Selective awareness and interest for e-banking services:

Lack of uniformity in the general awareness levels for different e-banking services is observed throughout all the different categories.

6. Constant need for updation of existing services:

Banks also face the challenge of constantly needing to upgrade their operations and the utility of their services to meet the fast-changing demands and expectations of customers.

7. Poor customer relations efforts:

The findings from the study revealed that existing measures put in place for handling customer relations issues and grievances remain sub-par, as specialised training and orientation in this regard is often not carried out by the banks.

8. Cyber-security risks:

E-banking services continue to be affected by persistent security concerns, particularly those related to cyber security threats such as phishing, hacking, data breaches and fraudulent transactions. Although the intensity of such risks has declined over time, due to improved security protocols and technological safeguards, banks have not been able to eliminate them. This ongoing vulnerability continues to affect customer confidence and poses a challenge to the seamless adoption of e-banking services.

6.2.27 Challenges faced by bank customers

1. Problems related to security and privacy issues:

Although not as prevalent, there continues to exist a significant degree of caution and inhibition related to the security aspects of e-banking services in Nagaland. There is widespread fear of falling prey to scams, fraud and identity theft.

2. Lack of awareness and knowledge:

Due to the sheer range of e-banking services available, and inadequate effort from banks to spread awareness, it has become an almost impossible task for the layman to gain sufficient awareness and knowledge about all the different e-banking facilities and services available. Only 10% of bank customers reveal that they come across e-banking awareness ads/campaigns. Thus, the findings reveal that bank customers consider their lack of awareness about several aspects of e-banking services as a major and frequently faced challenge.

3. Difficulty in understanding instructions:

Differences in the individual's educational status, background, age and even intellectual capacities give rise to instances where certain customers face undue stress and difficulties in understanding the instructions necessary to operate e-banking services efficiently. Therefore, further simplification of existing systems, designs and instructions is required. Customers require better efforts with regard to support and education about e-banking services. The findings reveal that about 58% of customers have never been approached by a bank official for the purpose of educating them about e-banking services.

4. Technical failures and systematic inefficiencies:

The heavy dependence of the e-banking sector on external agencies such as telecom networks, internet connectivity, IT professionals and ground maintenance personnel results in the compromise of the overall quality of e-banking services in case any type of inconsistency arises among these factors. Poor response time, non-functioning ATMs, inadequate cash at ATMs and

connectivity issues are regarded as frequent problems that users face concerning e-banking services.

5. Inadequate infrastructure and inability to procure necessary electronic devices:

In some cases, customers may be ready and equipped to use e-banking services; however, they may be unable to do so simply due to the lack of or complete absence of the facilities. Other times, some customers are unable to use e-banking services as they do not have the means to procure necessary devices such as mobile phones.

6. Insufficient customer support services:

The findings of the present study also indicate that many customers are faced with issues related to grievance redressal, with regard to e-banking services. The lack of assistance offered by banks and bank officials was also found to be inadequate, with many facing the problem on a more regular basis.

6.3 Crucial Inferences Drawn from Summary of Key Research Findings

1. High usage rate with demographic concentration:

The study reveals a significantly high rate of e-banking usage in Nagaland. However, from the demographic viewpoint, it can be observed that the adoption is largely concentrated among younger individuals and those with higher levels of educational qualifications, indicating that demographic factors play a crucial role in adoption patterns.

2. Presence of a well-established banking sector with rural gaps:

Nagaland has a well-developed banking sector with branches covering all districts. Nevertheless, the distribution of bank branches and ATMs shows considerable disparity, with rural areas still underserved, limiting accessibility for rural populations

3. Progressive digitalization and financial literacy efforts:

The state is witnessing steady growth in digitalization efforts. Initiatives promoting financial literacy and inclusion, both at the central and state levels, are contributing positively to the adoption of e-banking services.

4. Preference for multiple services:

E-banking users in Nagaland generally adopt a combination of services rather than relying on a single channel. Among these, ATM services and mobile banking remain the most widely used and preferred modes of e-banking.

5. Habitual usage pattern:

The usage of e-banking services displays a habitual pattern, with a significant proportion of users engaging in daily or weekly transactions. Younger, employed, and highly educated individuals are the most frequent users.

6. Low value transaction dominance:

Most users are light spenders, with monthly spending through e-banking averaging below Rs. 10,000. High-value transactions constitute a very small proportion of total usage, indicating a cautious spending behaviour.

7. High but uneven awareness levels:

While awareness levels of e-banking services are generally high, awareness of the specific features within each category is inconsistent. Certain facilities continue to register relatively high levels of unawareness suggesting a need for a deeper, feature-level awareness campaign.

8. Influence of demographic factors on awareness:

Variables such as gender, age, educational qualification and occupation significantly influence the awareness levels of different e-banking services, with younger and more educated users generally exhibiting higher awareness

9. Positive perception of e-banking services:

There is widespread existence of positive perception in Nagaland, as evidenced by the strong alignment between user expectations and experiences. Mobile banking services register the highest positive perception, while ATM services rank the lowest.

10. Shift from traditional to digital channels:

The findings indicate a marked preference for e-banking services over traditional transaction methods such as cash, cheques and in-person branch visits. Mobile banking emerges as the most preferred channel, whereas debit/credit card usage lags.

11. High satisfaction level across services:

Satisfaction levels are high for all e-banking categories, with mobile banking services recording the highest satisfaction scores.

12. Demographic influence on satisfaction:

Satisfaction levels vary across demographic factors such as gender, age, educational qualification and monthly income, indicating that these variables influence how users perceive and evaluate e-banking services.

13. Persistent challenges hindering e-banking growth:

The key challenges to the e-banking sector arise from issues such as limited rural connectivity, reluctance among senior citizens, dependence on external service providers, inadequate specialised training for bank staff and a negatively predisposed psychological attitude of certain customers towards digital channels.

6.4 Suggestions

The findings from the present study helped in the construction of some suggestive measures that were deemed relevant and important for the growth of the e-banking sector in Nagaland. These suggestions are given below:

1. Improve in bank-branch distribution:

There is a need to improve the district-wise bank branch distribution in the state of Nagaland, to address the issue regarding the stark disparity in the bank branch distribution that exists presently. The banking sector should also look into spearheading fast-track development of e-banking infrastructure in the state, and strive for a more balanced developmental approach among all urban as well as rural regions.

2. Enhance customer-oriented campaign:

The banks in Nagaland should increase and improve their customer-oriented campaigns and efforts. There is a need to expand the reach of these programs as well as increase their frequency, while also simultaneously pursuing a more intensive and targeted strategy, to make their impact more noticeable and effective. Targeted and tailored approaches can be made

towards senior and rural bank customers to affect better adoption and usage rates within the demographic.

3. Effectively convert awareness into usage:

Although the awareness for e-banking services is generally high in Nagaland, the corresponding adoption and usage of many of these facilities and sub-categories of services is still lower than the desired standard. As such, banks need to divert their focus towards the efficient conversion of existing awareness into active usage through systematic, coordinated and collaborative efforts.

4. Balance digitalization and adoption rates:

The seeding of digital banking services in Nagaland is impressive; however, the same progress in this regard is not reflected in the number of active users for many e-banking services and facilities. Therefore, the banks need to re-analyse this gap and design initiatives to align digitalization rates with adoption rates.

5. Address demographic differences in strategy formulation:

Demographic factors such as age, gender, educational qualification, occupation and monthly income all have varying degrees of impact on the awareness and satisfaction levels of different e-banking services. As such, these factors should be regarded more keenly to improve e-banking service quality and perception. Specially designed initiatives aimed at tackling these statistically significant differences in awareness and satisfaction levels can foster new avenues of growth and internal improvement within the sector.

6. Develop strategies to promote services with low usage rates:

There is a high overall usage rate for e-banking services in general; however, there are certain sub-categories of e-banking services with very low usage rates. Banks can roll out strategies to improve such services in accordance with the requirements of their customers, so that such services can contribute meaningfully towards enhancing the overall customer experience. Otherwise, the re-analysis of these services can be carried out to better understand their utilities and features for introducing timely alterations or modifications that may improve their performance in this regard.

7. Address gaps between expectations and experiences:

There is a low match rate between customers' experience and expectations for parameters like quality of service, cost-effectiveness and security of e-banking services. Therefore, the banks can further analyse customers' expectations with regard to such parameters to improve the service offering and elevate customer experience with the different e-banking services. More emphasis should be given towards such efforts, since adaptation to the ever-changing customers' demands and expectations can determine the continued success or eventual failure of the service offerings.

8. Improve perception and satisfaction together:

Attainment of a positive perception of e-banking services has a direct impact on the satisfaction levels as well. As such, more effort should be aimed towards identifying and understanding the key requirements of bank customers to deliver services that are able to meet their expectations, thereby improving their perception and satisfaction further.

9. Collaborate for infrastructure development:

Since the quality of e-banking services is highly dependent on external factors such as infrastructural capacity, quality of connectivity, establishment of a robust banking network and the like, a steady scheme of collaboration between banks and the government should be implemented. A coordinated approach from the government level is required to implement all-around development of key infrastructure, access to basic facilities, targeted sponsored programs for promotion of e-banking and discourse of better training to both bank officials as well as customers.

10. Strengthen mobile banking services:

There is a growing affinity for modern e-banking services, such as digital banking alternatives like mobile banking services. The preference for mobile banking services is very high in Nagaland, and satisfaction levels for parameters such as reliability, convenience, efficiency and fulfilment all register above 90%. This signifies a shift in momentum towards newer service offerings, because even though usage rate for services like ATM is higher, the preference for mobile banking is undisputable. The banking industry should

therefore continue to strive towards improving the mobile banking sector in line with the customers' preferences and expectations to maintain this positive momentum.

11. Promote e-payments for offline activities:

In Nagaland, the use of e-banking alternatives to cash payment for offline activities is still very low. This may be due to the problems faced by customers with regard to the non-availability of necessary devices for facilitating e-payments, or unreliable connectivity in certain regions. Therefore, the challenge of improving the physical e-banking infrastructure should remain a top priority for the banking industry in the state.

12. Focus on controllable internal factors:

Although the scope for changing and controlling elements which are external to the banking industry such as the extend of economic development, infrastructural deficits, cultural and psychological factors is often very limited, however, banks can focus on controlling the internal factors, such as encouraging specialised training for handling e-banking related grievances and complaints, better management of customer relations, maintaining sufficient maintenance personnel for prompt and regular upkeep of devices, leveraging latest technology into the services and improving research and development operations. These steps will significantly reduce the number of challenges creating barriers to the growth of the e-banking sector.

13. Capitalise on existing positive outlook:

The findings from the present study show a positive inclination towards e-banking services in the state of Nagaland. This reflects highly on the opportunities for advancement and growth of the sector in the future. In this regard, extensive collaborative efforts from both the banking sector and government should be meted out definitively and systematically, to make the best exploitation of these prospects proactively and thereby improve the standing of the e-banking sector in the state.

6.5 Limitations of the Study

1. The present study is confined to the two districts of Kohima and Dimapur in Nagaland; hence, it may not be the most accurate representation of the entire state owing to differing socio-economic conditions.
2. The present study was conducted with only 400 respondents (bank customers) and an additional 50 bank officials for the collection of primary data, which, though adequate for the study and meaningful analysis, may still not capture the perception of the entire banking population of Nagaland.
3. The primary data collection was carried out over a long span of time, wherein a questionnaire survey was conducted between June 2022 and June 2023; meanwhile, the interviews were conducted from June 2024 to August 2024 and again in March 2025. Changes in the banking sector during this period may have influenced customer responses. The time lapse in the collection of data and presentation of findings can hinder the accurate representation of the current scenario.
4. The scope of the present study is limited to an attempt at gaining a better understanding of bank customers' attitude and behaviour towards e-banking services in the context of usage, awareness, perception, preferences and satisfaction of customers. (perspective and attitude)
5. The study does not make any comparative analysis of e-banking services between public and private banks, between different districts or between urban and rural regions.

6.6 Contributions of the Study

1. Empirical Insights:

The present study offers valuable empirical data and first-hand information with respect to bank customers' perspectives on e-banking services in Nagaland. It also offers a comprehensive understanding of the existing banking scenario and network within the state.

2. Practical Implications:

The present study offers sound and practical recommendations for improvement of e-banking services and the banking sector as a whole. The research highlights key challenges that require immediate attention and key developments taking place with e-banking services.

3. Academic utility:

The contents of the research study will serve as a useful reference for research scholars, academicians and institutions undertaking further research in the field of banking, digital finance, and consumer behaviour.

4. Policy and curriculum development:

The present study can contribute significantly towards academic progress, course development attempts, policy formulation and help disseminate necessary knowledge to the public and policy makers.

6.7 Scope for Further Study

The e-banking sector continues to evolve rapidly, with constant technological, regulatory and behavioural changes. Given its growing importance in achieving economic and developmental goals, there is a strong need for sustained and expanded research in this area. Future studies may focus on the following:

1. Identify new avenues for overall improvement of the e-banking sector and banking industry as a whole.
2. Collect information required to develop new strategies and techniques for improving the quality of existing services and designing new services with better features and functionality. necessary for structuring new strategies and techniques for better delivery of existing services, as well as designing new services with better and improved features.
3. Examine the effects of policy changes on the e-banking sector and propose actionable recommendations for current and future development initiatives.
4. Monitor the growth and development of the e-banking sector to identify emerging trends and patterns for informed decision-making.

5. Evaluate the importance and usefulness of various e-banking services, enabling comparative studies or in-depth case analyses.
6. Conduct comparative research on the progress and status of e-banking services across the different states in India to identify the best practices and gaps.
7. Investigate differences in the perspectives and usage behaviour of rural and urban customers to design more inclusive strategies.
8. Undertake longitudinal studies to assess the potential areas of growth and predict future trends in the e-banking sector.

6.8 Conclusion

The banking sector in Nagaland is a well-functioning and drastically changing industry, with its reach extending across all districts. Although systematic disparities still exist in the branch and ATM network, notable progress has been made over the last few years. Recent trends indicate a strong shift towards e-banking alternatives over traditional banking practices, signifying a steady growth in the preference for digital services, particularly mobile banking and other online transaction modes.

The findings of the present study, clearly reveal that customers' sentiments and affinity towards e-banking services have grown significantly. The overall perception is highly positive which reflects the potential for further development and adoption of e-banking services in the state.

Based on the data analysis the following conclusions can be safely drawn in line with the objectives of the study:

1. There is high level of awareness of e-banking services among bank customers in Nagaland.
2. Bank customers exhibit a predominantly positive perception of various e-banking services.
3. There is a strong preference among customers to use e-banking services over cash for financial transactions.

4. The overall satisfaction level of e-banking services among bank customers is significantly high.
5. The major challenges to the growth of e-banking in the state stem from its rural landscape and infrastructural deficiencies. Persistent issues such as customer hesitation, psychological barriers, and inefficient customer relationship practices remain obstacles that need to be addressed for sustainable development of the e-banking sector.

The status of e-banking services in the state is one that is sound in its foundation and shows promising scope for continued and steady growth in the customer base. Where sincere efforts for development can be carried out along with the resolute addressal of key challenges, the prospects of the sector seem limitless. With digitalization efforts now stepping into the forefront of global economic ambitions, there is an absolute conviction that e-banking services will continue to progress expeditiously and also consistently contribute towards the building of a modern world.

ANNEXURE- I:

QUESTIONNAIRE

**Thesis title- “E-banking Services in Nagaland: A Study of Customers’
Perspective”**

All information received will be used exclusively for research and academic purposes only.

Kethosenuo Kesiezie

Reg. No- Ph.D./COM/00323

Research Scholar

Department of Commerce

Nagaland University

Kohima Campus: Meriema

.....

Respondent’s Profile:

1. Gender: Male [] Female [] Others []

2. Age:

Less than 20 years []

20-30 years []

31-40 years []

41-50 years []

More than 50 years []

3. Educational Qualification:

HSLC []

HSSLC []

Undergraduate []

Post Graduate []

Others (please specify).....

4. Occupation Status:

Student []

Unemployed []

Self-Employed []

Government Employee []

Emoloyed in Private Sector []
Others (please specify) []

5. Marital Status: Married [] Unmarried []

6. Monthly Income:

Less than Rs.20,000 []

Rs.20,000-40,000 []

Rs. 40,001- 60,000 []

Rs. 60,001- 80,000 []

More than 80,000 []

note **Electronic banking** or **E-banking** refers to the services offered by a bank or financial institution, to its customers, which allows them to carry out various financial transactions and other banking activities, usually over the internet. These services include, ATMs, E-cheques, debit/credit cards, smart cards, NEFT, RTGS, internet-banking, mobile-banking (bank apps, Gpay, PayTM..etc), SMS banking and so on

6 ~~~~~

1. Name of the bank/s where you have an account

.....

2. Type of account:

Savings A/C []

Current A/C []

Both $\left[\begin{smallmatrix} 1 & 0 \\ 0 & 1 \end{smallmatrix} \right]$

3. How long have you had your bank account/s?

Less than 5 years []

5-15 years []

16-25 years	[]
-------------	-----

26-35 years []

More than 36 years []

4. Do you use any e-banking services offered by your bank?

YES []

NO []

**If you have ticked NO, kindly skip to Question No 30.*

5. Which e-banking services do you use? (tick all applicable)

ATM services []

Internet banking services (NEFT, RTGS..etc) []

Debit/Credit Card services []

Mobile Banking services (UPI, G Pay..etc) []

Others (please specify) []

6. How long have you been using the e-banking services?

E-BANKING SERVICE	NO. OF YEARS IN USE				
	< 5	5-10	11-15	16-20	20+
ATM					
Internet banking					
Debit/credit cards					
Mobile banking					

7. How were you introduced to e-banking?

Through friends and family []

Through bank/ bank officials []

Out of necessity []

Simply to try it out []

Others (please specify).....

8. How frequently do you use e-banking services?

Daily [] Weekly [] Monthly []

Others (please specify).....

9. What is your approximate monthly spending through e-banking transactions/payments for the following activities?

PARTICULARS	Less than 10,000	10,000- 50000	50,001- 1,00,000	More than 1,00,000	N/A
Online shopping					
Offline shopping					
Cash withdrawal from ATM					
Payment of utility bills					
Fund transfer					
Payment of interest on loans/insurances					
Investment in securities/mutual funds					

10. With regard to the e-banking services listed below kindly put a tick within the appropriate slot for both AWARENESS and UTILISATION categories.

PARAMETERS	AWARENESS		UTILISATION	
	Aware	Unaware	Using	Not Using
Automated Teller Machine (ATM)				
Cash Withdrawal facility				
Fund Transfer facility				
Utility Bill Payment facility				
Applying for loans using ATM				
Deposit facility				
Credit card				
Debit Card				
Online shopping using debit/credit cards				
Online bill payments using debit/credit cards				

Payment for offline shopping using debit/credit cards				
Internet Banking				
National Electronic Fund Transfer (NEFT)				
Real Time Gross Settlement (RTGS)				
Immediate Payments Service (IMPS)				
Availing loans using internet banking				
Availing insurance using internet banking				
Investing using internet banking				
Mobile Banking				
Mobile Apps (yono by SBI, BobWorld by Bank of Baroda, iMobile by ICICI..etc)				
SMS banking				
Unstructured Supplementary Service Data (USSD)				
E-Wallet (Paypal, PayTM..etc)				
Unified Payment Interface (UPI)				
Aadhaar Enabled Payments Service (AePS)				
Availing loans using mobile banking				
Availing insurance using mobile banking				
Investing using mobile banking				

11. Please indicate YES or NO to the following questions listed below

Sl/no	QUESTION	YES	NO
1.	Do you know that you can transfer funds to different bank accounts using e-banking services?		
2.	Do you know that you can keep track of your account activity through e-banking?		
3.	Do you know that you can pay your utility bills using e-banking services?		

4.	Do you know that you can do mobile/ DTH recharge using e-banking services?		
5.	Do you know that you can pay taxes using e-banking services?		
6.	Do you know that you can book tickets (hotels, bus, train, flight, movie) using e-banking services?		
7.	Do you know that you can request for demand draft/ pay order/ cheque book using e-banking services?		
8.	Do you know that you can carry out financial trading activities through e-banking services?		
9.	Do you know that you can apply for loans/ mortgages using e-banking services?		
10.	Do you know that you can make merchant payments, do online shopping using e-banking services?		
11.	Do you know that you can apply go for different kinds of insurances through e-banking platforms?		
12.	Has the use of e-banking services helped reduce the need for you to visit bank branches?		
13.	Has e-banking helped to make your banking experience more convenient/efficient?		

12. How often do you come across any advertisement/ awareness campaigns for E-banking services by any bank/s.

Always [] Sometimes [] Rarely [] Never []

13. Have you ever been approached by any bank official for the purpose of educating you regarding E-banking services?

YES [] MAYBE [] NO []

14. Put a tick mark against the mode / channel which you prefer to use for the following activities.

PARTICULARS	ATM	Internet banking	Debit/credit cards	Mobile banking	Visit to bank branch	Using cash
Fund transfer						
Payment of utility bills						
Offline Shopping						
Online shopping						
Viewing and tracking bank account activity						
Mobile/DTH/ other recharge						
Booking tickets						
For loan application /payment purposes						
For insurance application/ payment purposes						
For investment purposes						

15. If given the choice, you will prefer to make payments –

In cash []
 Using debit/credit cards []
 Internet banking []
 Mobile banking (UPI, QR code..etc) []
 Others (please specify).....

16. Rank the following e-banking services according to your overall preference (1- most preferred, 6- least preferred)

Sl/no	PARTICULARS	RANK
1.	ATM	
2.	Internet banking	
3.	Mobile banking	
4.	Debit/credit cards	
5.	Cheques	
6.	Bank branch visit (traditional banking)	

17. How do you prefer to get paid?

In cash ☐ ☐

Bank transfer ☐ ☐

Cheques ☐ ☐

Others (please specify).....

18. Kindly indicate your level of satisfaction with regard to the e-banking services which are applicable to you.

(1- very dissatisfied 2- dissatisfied , 3- neither satisfied nor dissatisfied , 4- satisfied 5- very satisfied)

i) ATM SERVICES.

PARTICULARS	1	2	3	4	5
It is reliable (reliability)					
The cost of transaction is low (cost-effectiveness)					
It is convenient (convenience)					
It is secure (security)					
It is efficient (efficiency)					
It fulfils my needs (fulfillment)					
It is easy to use and understand (understandability)					
It is trustworthy (assurance)					
It is easily accessible 24x7 (ease of accessibility)					
It helps to save my time (time-saving)					

It completes assigned tasks quickly (speed of processing)					
It helps redress customer grievances quickly (responsiveness)					
It offers good quality services (service quality)					

ii) INTERNET BANKING SERVICES

PARTICULARS	1	2	3	4	5
It is reliable (reliability)					
The cost of transaction is low (cost-effectiveness)					
It is convenient (convenience)					
It is secure (security)					
It is efficient (efficiency)					
It fulfils my needs (fulfillment)					
It is easy to use and understand (understandability)					
It is trustworthy (assurance)					
It is easily accessible 24x7 (ease of accessibility)					
It helps to save my time (time-saving)					
It completes assigned tasks quickly (speed of processing)					
It helps redress customer grievances quickly (responsiveness)					
It offers good quality services (service quality)					

iii) DEBIT/CREDIT CARDS SERVICES

PARTICULARS	1	2	3	4	5
It is reliable (reliability)					
The cost of transaction is low (cost-effectiveness)					
It is convenient (convenience)					
It is secure (security)					
It is efficient (efficiency)					
It fulfils my needs (fulfillment)					
It is easy to use and understand (understandability)					
It is trustworthy (assurance)					

It is easily accessible 24x7 (ease of accessibility)					
It helps to save my time (time-saving)					
It completes assigned tasks quickly (speed of processing)					
It helps redress customer grievances quickly (responsiveness)					
It offers good quality services (service quality)					

iv) MOBILE BANKING SERVICES

PARTICULARS	1	2	3	4	5
It is reliable (reliability)					
The cost of transaction is low (cost-effectiveness)					
It is convenient (convenience)					
It is secure (security)					
It is efficient (efficiency)					
It fulfils my needs (fulfillment)					
It is easy to use and understand (understandability)					
It is trustworthy (assurance)					
It is easily accessible 24x7 (ease of accessibility)					
It helps to save my time (time-saving)					
It completes assigned tasks quickly (speed of processing)					
It helps redress customer grievances quickly (responsiveness)					
It offers good quality services (service quality)					

19. On the basis of your experience kindly indicate your perception of quality of the following e-banking services with respect to the given parameters –

(1- experience was not as expected, 2- experience is as per expectation, 3- experience exceeded expectation)

PARTICULAR	ATM				Internet banking		
	1	2	3		1	2	3
Reliability							
Cost- effectiveness							
Convenience							
Security							
Efficiency							
Fulfilment							
Understandability							
Trustworthiness/ assurance							
Ease of accessibility							
Time-saving							
Speed of processing							
Responsiveness							
Quality of service							

PARTICULARS	Debit/credit cards				mobile banking		
	1	2	3		1	2	3
Reliability							
Cost- effectiveness							
Convenience							
Security							
Efficiency							
Fulfilment							
Understandability							
Trustworthiness/ assurance							
Ease of accessibility							
Time-saving							
Speed of processing							
Responsiveness							
Quality of service							

20. Please indicate your level of satisfaction for your overall experience with e-banking services.

- 1- Very dissatisfied []
 2- Dissatisfied []
 3- Neither satisfied nor dissatisfied []
 4- Satisfied []
 5- Very satisfied []

21. Please indicate the quality of e-banking services according to your experience.

- 1- Very bad []
 2- Bad []
 3- Neither Bad nor Good []
 4- Good []
 5- Very good []

22. Please indicate the type and frequency of problem/s you face when using e-banking services. (Tick all applicable)

PARTICULARS	Never [1]	Rarely [2]	Often [3]	Very often [4]	Always [5]
Security issues					
Privacy issues					
Lack of awareness about certain e-banking services					
Lack of knowledge on how to use					
Difficulty in understanding information/instructions given					
Poor response time					
Server/ app/ website crash or malfunction					
Non- functioning ATMs					
Inadequate cash at ATMs					
Lack/unavailability of required e-banking facilities					
Network/ internet problems					

Inability to avail necessary devices to use e-banking					
Poor grievance redressal mechanism					
Loss of money through unauthorized/unintentional transactions.					
Lack of ready assistance from bank personnels					

23. Do you think e-banking services should improve?

YES [] MAYBE [] NO []

24. Will you continue using e-banking services in the foreseeable future?

YES [] MAYBE [] NO []

25. Will you recommend E-banking to anyone?

YES [] MAYBE [] NO []

26. Will you open a new bank account in a bank which doesn't offer any e-banking services

YES [] MAYBE [] NO []

27. Are you willing to try new e-banking services?

YES [] MAYBE [] NO []

28. Are you willing to use e-banking services for new purposes (i.e, purposes other than those for which you presently use e-banking services) in the future?

YES [] MAYBE [] NO []

29. Have you benefitted from the use of e-banking services?

YES [] MAYBE [] NO []

.....

*****This section is for NON-USERS of e-banking services only*****

30. Are you aware of the e-banking services being provided by your bank?

YES [] NO []

31. Have you ever thought of using e-banking facilities and services in the future?

YES [] MAYBE [] NO []

32. Will you ask your bank about the e-banking services being provided so that you can also use them?

YES []

MAYBE []

NO []

33. Will you open a new bank account in a bank which doesn't offer any e-banking services?

YES []

MAYBE []

NO []

ANNEXURE II:

INTERVIEW SCHEDULE

**Research Topic: “E-Banking Services in Nagaland: A Study of Customers’
Perspective”**

**Research Scholar- Kethosenuo Kesiezie
Regn. No- Ph.D/COM/00323**

Name of bank-

Name of employee-

Designation-

Date-

Time-

1. Is e-banking a priority for your bank?
2. What type of e-banking services are being offered by the bank?
3. What is the digital /e-banking service coverage across your customer base?
(How many operational accounts with e-banking services)
4. Is there a separate department for e-banking services?
5. What measures / initiatives are being taken up by your bank for promotion of e-banking services for -
 - A. Customers
 - B. Businesses
 - C. Enterprises
6. Does the bank receive any complaints regarding your e-banking services?
What are the different types of complaints in this regard and how many does the bank receive on average?
7. What are the grievance redressal methods when addressing customer complaints related to e-banking services? Is this done promptly?
8. Do you think provision of e-banking services is required to retain and attract customers?

9. Does the bank participate in financial inclusion activities?
10. What type of schemes for digitalization as well as financial inclusion are being implemented by the bank?
11. Is there any pressure from the centre to promote and push e-banking services and digitalization process?
12. Do the bank / employees receive any incentive for promoting e-banking services? If yes, please elaborate.
13. Does the bank receive any incentive for expanding digital coverage? If yes, please elaborate.
14. Does the bank face any problems or challenges in promoting and implementing e-banking services among bank customers.? What are the major challenges in this regard?
15. Are customers more willing to adopt e-banking services than in the past?
16. How has the attitude of customers changed over time with regard to e-banking services
17. Are all categories of customers ready and equipped to use e-banking services?
18. What type of problems does the customers complain about the most when using e-banking services?
19. What are the major challenges for promotion and increasing e-banking adoption/usage rates?
20. What is the e-banking usage rate among customers in your bank?
21. What measures can be taken to improve quality of e-banking services?
22. What measures can be taken to increase usage rate of e-banking services?

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