

**FACTORS INFLUENCING DIFFUSION OF MOBILE
PAYMENTS**

With reference to Delhi-NCR

Doctoral Thesis Submitted

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In

MANAGEMENT

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November 2024

THESIS COMPLETION CERTIFICATE

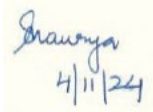
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ABSTRACT

The aim of this research is to study the factors impacting usage of mobile payments (MPS) by consumers in Delhi-NCR region of India.

With the availability of affordable data and a rich ecosystem of fintech companies, latent demand, the ecosystem has seen a rise of new payment technologies at the point-of-sale and payments for online shopping etc, in product demand by the consumers of such services. Also, the surge in demand for global payment solutions has driven fintech firms, mobile manufacturers, internet service providers and bankers alike to scramble to provide effective and efficient solutions to customers. This study is undertaken to identify the factors which influence the diffusion of mobile payments.

Mobile payment refers to a mode of payment which pays the product or service purchased via mobile devices, PDA, mobile PC, and so on that have access to the Internet (Wu, Lee, & Tian, 2021). While the mobile payments were introduced in India as an IMPS feature in 2010, it took off sometime in 2016 after demonetization of specified higher denomination bank notes; the same year also saw the free availability of high quality of mobile data by some service providers in India as also the emergence of fintech companies with their mobile payment apps. The cash crunch situation this created by demonetization created a need for customers to use the mobile payment apps for retail transactions. The country has not looked back with the total transactions in the country with the transactions increasing from 1.8 crores in volumes in financial year 2016-17 to clocking 1370.36 crore transactions in Aril 2024 alone.

Mobile payments are not only a payment channel but also a service offered to the customer by fintech's and banks. Therefore, customer retention by way of meaningful service is of utmost importance. The advent of technology appears to have influenced the customer behaviour to a digitized customer behaviour leading to changes in their approach towards satisfaction in service which could impact customer retention. Customer centricity is therefore, considered

important, which ultimately leads to loyal customers and more profitable business. It is imperative to ensure customer satisfaction for the development of a sustainable business.

Considering the importance of mobile payments in India and also considering that it has gained huge inroads as a very user friendly and enabling and a disruptive technology as well; it was therefore considered important to examine the factors in the ecosystem that have played a role in acceptance of this technology, as the external factors appear to have significant influence along with the personal factors of the Technology Acceptance Model(TAM). This intention has led to the examination of factors under the Diffusion of Innovation Theory (IDT) under the five factors of the Diffusion of Innovation Model i.e.,

Relative Advantage,

Complexity,

Compatibility,

Observability and

Trialability

as well as the factors of the TAM i.e.,

Perceived Ease of Use and

Perceived Usefulness.

Davis (1986) proposed the technology acceptance model (TAM) to explain and predict user acceptance of information systems or information communication technology. In TAM, cognitive beliefs such as perceived usefulness and perceived ease of use are counted as key factors for technology acceptance. Although they originated in different disciplines, TAM and IDT have some obvious similarities. The relative advantage construct in IDT is often considered to be the PU construct in TAM, and the complexity construct in IDT is extremely similar to the PEOU concept in TAM (Teng, Grover, & Guttler, 2002). Therefore, a conceptual framework of ECRM model with constructs of both TAM and IDT has been considered for this study.

By understanding the importance of different factors of mobile payments in influencing the customers', the service providers can finetune their strategy to develop and implement better products and delivery parameters for higher diffusion of the mobile payment's products.

Keywords: Mobile Payments, E-CRM, IDT, TAM

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CHAPTER I

INTRODUCTION

1.1 OVERVIEW

When funds are transferred between accounts, they move in a series of steps that together form a payment system. Therefore, they impact individuals, small businesses and corporate or institution alike. Payment systems let you pay a deposit on a house, withdraw money from a cash machine, pay by direct debit, write a cheque, receive your salary into your bank account or transfer money via your smartphone. All these activities and services are supported by banks and fintech companies. In the digital world of today it's important that the way our money is moved around and processed is closely monitored and regulated. As crores of rupees change hands every single minute, the payment systems are closely monitored and regulated primarily for customer safety and broadly for safety of the financial market infrastructures to ensure that payments in the economy are flowing smoothly and seamlessly. This is the reason why regulators and the sovereign are also involved in managing stable, secure and smooth operations in the country.

With the advent of technology, it is but inevitable, that technology came into the operational activities of the payment systems and its operators. While the process started with installation of Automated Teller Machines (ATMs), it progressed to Magnetic Ink Character Recognition (MICR) based cheque processing.

The payment systems evolved over time with introduction of National Electronic Funds Transfer (NEFT), Real Time Gross Settlement (RTGS), (Immediate Payment Service (IMPS) and now the introduction of the United Payments Interface (UPI) platform that provides for payment on the go i.e. through mobile phones.

The year 2016 was a watershed year for India as it saw three main milestones, first was the demonetization of higher denomination notes, 2nd was the introduction of UPI platform by the NPCI. It was a path breaking technology as it allowed the third-party operators to leverage on the platform and offer payment services. The third and most likely the most important factor was the

availability of free/ low-cost data by primarily Jio which led to many citizens onboarding to the digital platform. The development of the fintech industry in India and availability of aggregator-based services around the same time, led to a change in lifestyle aided by technology. The mobile payments technology caught on in a big way in India.

A payment system is a delivery channel for payment of value to settle transactions arising out of transfer/ purchase of goods or services. While traditionally cash was the mode of payment, it slowly transitioned to negotiable instruments, electronic payments and now it has embraced mobile payments. A payment system is useful in terms of reducing the turnaround time for a transaction, leading to smaller business cycles and more efficient churning of finances leading a more efficient economy. With the advent of technology, emergence of fintech companies in the ecosystem and availability of affordable smart phones and mobile data, it was inevitable that payment systems adopted technology to oil the payment system machinery.

From mechanised processing of cheques (MICR clearing), the world and likewise India soon moved to Electronic Clearing Systems. The Electronic Clearing System in India started off in 2004 with Real Time Gross Settlement and NEFT in 2005. Therefore, the electronic mode of delivery channel in India is only approximately two decades old. The next important milestone in the digital payment journey was the introduction of the mobile based payment system IMPS (Immediate Payment System) in India in 2010 which moved India to a truly digital mode of payment system. This was further improved upon by introduction of the UPI interface in 2016 which is a payment systems platform which allowed third party service providers to participate in the payment delivery mechanism by tying up with bankers to avail the benefits of the UPI platform. The UPI interface made it possible to add another level of convenience by making payments to become absolute virtual payments.

While cash has been the most popular means of payment in India with huge volumes of banknotes being manufactured, put in circulation, subsequently the soiled notes are mopped up from the system and destroyed; the cost of such

usage to the economy has been often overlooked. The net cost of cash in India is 1.7% of GDP (Accelerating the Growth of Digital Payments in India- A five-year outlook, Visa, 2016) which is borne by four main stakeholders i.e. households, businesses, banks, and the central bank. Further, foregone tax revenues from the shadow economy, estimated to be 19 percent of India's GDP, account for 3.2 percent of India's GDP. Such a huge cost to the economy, prompted the Government to shift its transaction methods from Cash to the Digital Payments Methods available in the payment's ecosystem.

The Government of India announced its Digital India program in 2015 to deliver a range of services digitally. This was also complementary to the Cashless India program and the Pradhan Mantri Jan Dhan Yojana i.e. the JAM trinity (Jan Dhan Account, Aadhar and Mobile Banking) advantage, i.e. Linking of Jan Dhan Account to Aadhar Card and Mobile numbers to plug leakages of Government subsidies introduced by the Government in 2014 as well as for Financial Inclusion. According to the (Global Findex Report, World Bank, 2017) as of 2017, 80% of the population in India had access to bank accounts which was up from 35% in 2011. This coupled with the demographic profile of India where the median age is a little less than 29 years, with 50 % of the population under 25 years and 65% of the population under 35 years, has a large chunk of population which is adaptable to the functionalities of the mobile phone/ mobile payments. In terms of the TRAI Report for 2018-19, the Indian telecom sector is the second largest in the world in terms of the number of subscribers. At the end of the financial year 2018-19, the subscriber base was 1183.51 million out of which, 1161.81 million were wireless subscribers. The overall tele-density was 90.11% at the end of March 2019.

There have been many changes to the demographics of the country and the payment ecosystem in the last decade. The availability of bank accounts, affordable tariffs for data, increased tele density and a population with a median age of approximately 29 years are important aspects that poise India to take on the opportunities of Mobile payments and an efficient payment systems model. The last few years have also seen changes to the marketplace fuelled by affordable data and smart phones and the emergence of fintech industries. There

has been an emergence of app-based aggregator service in the marketplace in various segments particularly the aggregator-based food delivery apps and transport services, along with large online shopping platforms, as well as the presence of social media and availability of shopping and selling thereon.

Thus, the stakeholders in the payment ecosystem need to understand and appreciate the importance of mobile payments and the factors that influence their diffusion as it brings efficiencies to the marketplace in times of turnaround time of transactions and deepens and speeds up economic growth in the country.

1.2 MOTIVATION FOR THE STUDY

Every nation's central bank has goals for the development of its economy and the upkeep of a strong infrastructure for payments. Working with the nation's central bank for 31 years and counting, I can attest that it has been an amazing experience to see how the strong and dynamic architecture of payment networks has supported economic progress. The infrastructure supporting payment systems has kept up with technological advancements, offering a range of options from ATMs to NEFT, IMPS, RTGS, and, as of 2016, the UPI platform. Through partnerships with participants in the payment systems process, third party applications can offer a payment service on the UPI Platform, which is a generic platform.

Due to the UPI platform's outstanding performance and widespread popularity, it is currently being sought after and implemented in various nations, including Singapore, Nepal, Mauritius, the United Arab Emirates, and others.

Having worked in these fields as a central banker, it was necessary to investigate the variables affecting this diffusion in order to strengthen one's own understanding of the systems.

1.3 RELEVANCE OF THE TOPIC

A payment system offers a mechanism by which money can be moved between banks and other financial organisations in order to fulfil payment commitments resulting from financial and economic transactions that take place throughout

the economy. The cost of transferring products and services is decreased by an effective, safe, and dependable payment system. Because it affects transaction turnaround times and gives settlement finality, it is crucial for both retailers and consumers of the economic system. A quicker turnaround time translates into more efficient and productive money management and a greater contribution to economic growth.

With the advancement of technology, the conventional payment methods of cash and negotiable instruments have gradually been replaced by technology-based payment systems, the most recent of which being mobile payments.

In order to enable account-to-account transfers based on mobile number seeding in the bank accounts that clients kept, mobile payments technology was initially deployed in India as an IMPS feature in 2010. Paytm advanced as a respectable cash substitute following demonetization in 2016. The United Payment Interface, which allowed payments through virtual addresses—that is, without requiring the actual account number of the transacting entities to be shared—was introduced by National Payments Corporation of India in the same year. This enhanced the security of customer bank account information. An additional layer to the transaction process was added by the flexible UPI technology, which also permitted third-party payment interfaces. Several payment service providers resulted from this (Google pe, Phone pe, Mobi Kwik, BHIM etc.) A change in the way these services are paid for has resulted from telecom service providers offering reasonably priced data service and from the distribution of products and services through apps. The methods for paying utility bills, transportation bills (Uber/Ola), intercity tickets, and food delivery bills (Swiggy/Zomato) have changed. There is a possibility that it has become a tool for changing customer payment habits as the ecosystem in which we operate has changed due to the availability of affordable data, app-based services, and affordable smartphones, as evidenced from the country's daily volume of processed mobile payment transactions growing exponentially. The elements that affect the spread of UPI-based mobile payments, being a novel and disruptive technology, must be investigated in order to further the diffusion by making the appropriate adjustments to the payment ecosystem. This research

will look at the variables influencing the diffusion of mobile payments.

In this context, a reference is made to a global study was conducted and published in a paper titled "Users as Innovators in Developing Countries: The Global sources Innovation and Diffusion in Mobile Banking" (Van Der Boor et al., 2013)The study concluded that the developing countries play the role of ground breakers whose accumulated know-how leads to global adoption of innovation, reversing the roles traditionally assigned in the literature to "Northern" and "Southern" countries. It used a comprehensive, hand-collected data set to examine the case of mobile banking and found patterns that are consistent with the theory suggesting that "South" could play an important role in digital-age innovations in the future. In the study, a total of 138 firm entries by 93 different firms in 76 different countries was studied; the list included the first mobile banking product that was launched in 1997 up to May 2012. Observations of the study were:

- a) Most of the services in the sample emerged in non-OECD countries.
- b) Market demand was had important role on innovation and firm entry
- c) negative correlation, that is, the less the fraction of populations with accounts in formal institutions, the greater the number of services in mobile banking service providers.
- d) higher latent demand in developing countries made these novel financial products diffuse rapidly.

Thus, mobile payment is a way of providing financial inclusion and quick access to a vast majority of the population, in a developing country like India. It makes economic sense to provide quality banking services including financial inclusion by way of mobile banking, in view of insufficient banking infrastructure in a developing country like India, to cater to footfalls of customers at brick-and-mortar branches as well as in a digital mode. It offers a personalised banking facility within the confines of their homes and is a on the go payment channel.

1.4 SCOPE OF THE STUDY

In order to enable account-to-account transfers based on mobile number seeding in the bank accounts that clients maintained, mobile payments technology was initially deployed in India as an IMPS feature in 2010. Paytm advanced as a respectable cash substitute following demonetization in 2016. The Unified Payment Interface, which allowed payments through virtual addresses—that is, without requiring the actual account number of the transacting entities to be shared—was introduced by National Payments Corporation of India in the same year. This enhanced the security of customer bank account information. An additional layer to the transaction process was added by the flexible UPI technology, which also permitted third-party payment interfaces. Several payment service providers resulted from this (Google pe, Phone pe, Mobi Kwik, BHIM etc.) A change in the way these services are paid for has resulted from telecom service providers offering reasonably priced data service and from the distribution of products and services through apps. The methods for paying utility bills, transportation bills (Uber/Ola), intercity tickets, and food delivery bills (Swiggy/Zomato) have changed. There is a possibility that it has become a tool for changing customer payment habits as the ecosystem in which we operate has changed due to the availability of affordable data, app-based services, and affordable smartphones, as evidenced from the country's daily volume of processed mobile payment transactions growing exponentially. The elements that affect the spread of UPI-based mobile payments, being a novel and disruptive technology, must be investigated in order to further the diffusion by making the appropriate adjustments to the payment ecosystem. This research will look at the variables influencing the diffusion of mobile payments.

The study's overall goal: This research is being carried out to better understand the factors influencing the diffusion of mobile payments in the Delhi-NCR region through the hybrid IDT-TAM model of technology adoption.

The population or sample: The study's target population are the residents of

Delhi-NCR who are users of mobile payment services. This study seeks to gain insights on the factors influencing diffusion of Mobile Payments. This study was carried out in Delhi -NCR to measure the influence of the factors influencing diffusion of mobile payments. Delhi (including NCR) NCR being the capital of India, is a hub of economic activity with well-established app-based aggregator services for transportation, food delivery etc. Delhi-NCR is home to the physical marketplace as well as the digital marketplace, having diversity in the residents. Therefore, it was considered an appropriate population for examining factors influencing the diffusion of mobile payments.

The population or sample: The people who live in Delhi-NCR and utilise mobile payment services are the study's target group. With this study, we hope to learn more about the aspects that influence the diffusion of mobile payments. This study was conducted in the National Capital Region (NCR) of Delhi to assess the factors driving the diffusion of mobile payments. As India's capital, Delhi (including the National Capital Region, or NCR) is a centre of economic activity with well-established app-based aggregator services for food delivery, transportation, and other services. In addition to having a diverse population, Delhi-NCR is home to both physical and virtual marketplaces. As such, it was deemed a suitable demographic to investigate the variables impacting the adoption of mobile payments.

The population of Delhi - NCR is 1.68 crore as of the provisional 2011 census statistics and is expected to reach 2.1 crore by 2023. This study is based on a sample of 684 people. The data was gathered using a comprehensive online questionnaire and a convenience sample technique.

The length of the research: The research project was for 5 years with initial 2 years.

dedicated to reviewing the literature and framing the research proposal. One year was dedicated to conducting a pilot and the last two years to data collection, analysis and writing of the report.

The subject: Though some studies have been conducted on the TAM model, there is no comprehensive study to understand the social and

external factors in the ecosystem that led to the adoption of mobile payments in such a huge way. The Technology Acceptance Model (TAM) was treated as a good theoretical model to explain the acceptance of new technology; however, it is debatable whether the TAM model can be applied to all the cases of new technology adoption. Therefore, much empirical research recommended integrating TAM with other theories or models to cope with radical technological change and improve the quality and explanatory power (Carter & Bélanger, 2005); (Legris et al., 2003). TAM and Innovation of Diffusion Theory (IDT) are similar in some constructs and complement each other to examine the adoption of new technology (Y. H. Lee et al., 2011). Past researchers indicate that the integration of these two theories could provide a better model than either standing alone (J.-H. Wu & Wang, 2005), (L. Chen et al., 2002) and some prior studies prove good results of integrating the two models (Sigala et al., 2000) and (Gefen & Straub, 2004). The diffusion of innovation (IDT) theory seeks to explain how and why new ideas and practises are adopted. IDT theory explains the way in which innovations are communicated to different parts of society, and the subjective opinions associated with the innovations are important factors in how quickly diffusion or spreading occurs and individuals adopt the innovation.

For the purpose of this study a hybrid model having elements of both TAM and factors of IDT has been proposed to examine the factors that drive the diffusion of Innovation.

(Davis, 1986) proposed the technology acceptance model (TAM) to explain and predict user acceptance of information systems or information communication technology. In TAM, cognitive beliefs such as perceived usefulness and perceived ease of use are counted as key factors for technology acceptance.

A virtual store has progressively become the new business model; some researchers have provided analogies between virtual stores and their physical counterparts. As both the presence and operation of virtual stores depend

heavily on IT, they are often regarded as a type of Information Service (IS). To retailers, virtual stores are their strategic IS, while to consumers, virtual stores are end-user IS. This view is justified by previous literature (Lohse & Spiller, 1999). Hence, when consumers accept and use virtual stores, they are accepting and using technologies and innovations. The theoretical constructs are behaviour prediction, user acceptance, and innovation adoption. Theory of reasoned action (TRA), TAM, and IDT are among the widely supported theories that focus on these constructs.

Major findings include the various factors of IDT as also perceived ease of use, perceived usefulness and satisfaction having an influence on Diffusion of Mobile Payments with reference to the Delhi-NCR Region. Also, the observation that complexity did not have an inverse relation with Diffusion of Mobile Payments which is synchronous to the findings in some other Asian jurisdictions like China/ Taiwan/ Korea/ Pakistan/ Saudi Arabia.

Key words: Mobile Payments/ Diffusion of Mobile Payments/ Factors influencing Diffusion/ Relative Advantage/ Complexity/ Compatibility/ Observability/ Trialability

1.5 MOBILE PAYMENTS OVERVIEW/TYPES

United Payment Interface (UPI) is a platform provided by the National Payments Corporation of India an umbrella organisation for operating retail payments and settlement systems in India, is an initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA) under the provisions of the Payment and Settlement Systems Act, 2007, for creating a robust Payment & Settlement Infrastructure in India. The UPI platform facilitates mobile payments through the payment system participants usually banks. The banks also play the role of issuer by onboarding users of UPI through the third-party apps for providing the mobile payment facilities to the end users.

Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also caters to the "Peer to Peer" collect request which can be scheduled

and paid as per requirement and convenience. The apps were available on Google Play store from 25th August 2016 onwards.

Some unique features of the facility were as follows:

- a) Immediate money transfer through mobile device round the clock 24*7 and 365 days.
- b) Single mobile application for accessing different bank accounts.
- c) Single Click 2 Factor Authentication – Aligned with the Regulatory guidelines yet provides for a very strong feature of seamless single click payment.
- d) Virtual address of the customer for Pull & Push provides for incremental security with the customer not required to enter the details such as Card no, Account number; IFSC etc.
- e) QR Code
- f) Best answer to Cash on Delivery hassle, running to an ATM or rendering exact amount.
- g) Merchant Payment with Single Application or In-App Payments.
- h) Utility Bill Payments, Over the Counter Payments, QR Code (Scan and Pay) based payments.
- i) Donations, Collections, Disbursements Scalable.
- j) Raising Complaint from Mobile App directly.

As on May 31, 2024, there were 581 banks on the UPI platform, 26 3rd party apps and 18 prepaid Instrument Issuers (wallets) as per the data on the NPCI website.

While the features were well demonstrated, what appealed to users was probably the convenience that was not available in digital transactions earlier such as:

1. Convenience of making Payments to And from the Bank Accounts within seconds. It enables seamless transfer of money to a bank account as well as getting money from the bank account which should be extremely simple and convenient overall.
2. Visibility of the transaction status: The status of transactions is visible by SMS services as also displaying the status of the transaction on the

app. Settlement finality of transfer of funds is known on near real time basis.

3. Easy Bill Payments It enables customers to pay their bills online like payments of electricity, gas, etc. which banks partner with utilities service providers to give users an easy option to make the payments.

4. Virtual Cards Management: The wallet application enables users to save their debit and credit card data ensuring high security. It allows people to add money to their wallets through a one-click system.

5. Contactless Technology Payments/ Near Field Communication: Contactless technologies are more in vogue like QR codes and NFC, especially with retail chains.

6. Quick Self-registration: Mobile apps and Digital wallets have made their presence by easing people's lives and making the on boarding and the transaction-making process quick. The self-registration process – Download the application, Follow the KYC process, confirm registration through OTP, Set up the password and login.

7. Rewards and Discounts: Rewards and discounts generally convert one-time users into loyal customers. Many payment apps provide offers and discounts on purchase of goods and services on their app.

8. Analytics-Based Dashboards: There is an analytical based dashboard in the app to give customers proper information on where they should spend their funds, the upcoming bills, etc.

9. Chatbot: The most trending feature of any app is chatbots. Integrating it allows the customers to deal with their queries in an interactive manner.

10. Online dispute resolution system: The customer can raise a ticket if they have faced an issue with using the app.

The demonetisation exercise by the Government of India in November 2016 provided the enabling environment for the citizens to manage their retail payment needs by using the mobile payment apps.

1.6 RESEARCH PROBLEM

In the present study, the researcher has attempted to broadly understand the changes in the payment systems and specifically to the study the factors that have influenced the diffusion of mobile payments in Delhi-NCR.

Mobile payments in India is a relatively new and disruptive technology serving a payment system delivery option. It relies on the fintech apps available on the Appstore/ Google Play, a smart phone and availability of mobile data and most importantly an operational bank account. It is an emerging technology and going by the increasing volumes of transactions seem to be popular with the masses. The proposed study tries to understand the factors that contribute to the diffusion from the perspective of the theory of the Technology Acceptance Model encompassing the personal factors associated with adoption along with the social/ external factors elucidated in Rogers Diffusion of Innovation Theory (IDT) through the construct of Customer Satisfaction.

1.7 OUTLINE OF THESIS CHAPTERS:

The paper has been organized as follows:

CHAPTER 1 – INTRODUCTION

This chapter gives an overview of the research work undertaken and the conceptual basis of this study. It introduces the subject and discusses about the factors connected with satisfaction of customers/consumers of mobile payment systems.

CHAPTER 2 – LITERATURE REVIEW

This chapter presents an overview of the various literatures reviewed in the field of mobile payments. The literature review notes the changing trends in the payment systems ecosystem embracing the mobile payments as a new entrant and having a positive impact and also the possibility that India could be migrating to a digital economy or a less cash economy. It is further delved deeper to understand the factors that have played a role in the process of diffusion. Satisfaction of mobile

payment users is what enables the considered and continuous usage of the service. The basic idea of the review is to understand the process of the shift, as also the customer satisfaction factors addressed in the mobile payments apps as a service to end users. This chapter also explores the various conceptual framework in different studies which will guide the rest of the research.

CHAPTER 3 – RESEARCH METHODOLOGY

This chapter describes the research methodology followed i.e., the research design, the conceptual framework and the model, the sources of data, sampling design applied for this research, research instruments opted for data collection. Pilot study conducted initially before finalizing the questionnaire design for the main survey has been explained. Various analytical tools which are used for the analysis of the collected data to arrive at the conclusions are discussed. This chapter also describes the research objectives evolved from the research gap identified from the existing literature review and the hypotheses formulated to achieve the objectives.

CHAPTER 4 –DATA ANALYSIS AND INTERPRETATION

This chapter presents the analysis of data collected by using the questionnaire and the interpretation of the findings. At first, reliability analysis was done for all the independent and dependent variables to understand the internal consistency between items in a scale. Then the presence of Common Method Bias (CMB), one of the potential sources of measurement error which threatens the validity of the conclusions about the relationships between measures, was checked. Next the number of independent variables which have impact in the regression model was assessed. Then regression analysis was done to understand the significance of each of the identified factors in influencing customer satisfaction and thereby hypotheses testing was done. Degree of significance of these factors was analysed by using Standardized

Regression Coefficients to test another set of hypotheses. A comparison of the relative importance of the factors satisfying customers for different industrial chemical products was made from the weightages given by the respondents. Finally, the findings of the research survey were validated by the expert interview.

CHAPTER 5–RESULTS, DISCUSSION AND CONCLUSION

This chapter details out the summary of the findings from the analysis of the data, followed by the discussion on the findings. It also highlights the contribution of this study to the existing body of knowledge from the theoretical, practical, and social perspective along with the managerial implications. Lastly, the chapter also explains the limitations of the present study and the scope for future research.

1.8 SUMMARY

This study attempts to establish the relationship between the factors of TAM and IDT and customer satisfaction, ultimately leading to the diffusion of mobile payments. The influence of variables like age, occupation, and gender is also attempted to be understood on customer satisfaction. The population for this sample is the Delhi-NCR region.

The aim of the study is an examination of the factors that influence the diffusion of mobile payments. An introduction to the theoretical background of this study along with a brief description of the various personal and external factors has been provided. An introduction to identified factors that can influence customer satisfaction is also given. The chapter also explained the motivation for this study and provided an insight into the scope of this study. Finally, it is concluded with an overview of the other four chapters that followed.

CHAPTER II

LITERATURE REVIEW

2.1 OVERVIEW

The present study is an attempt to examine the different factors influencing the diffusion of mobile payments. The examination covers the personal factors influencing adoption as well as the external factors that could have influenced the adoption process. This chapter will throw light in on the shift in the digital payment ecosystem to embrace digital payments including mobile payments, the positive impact of mobile payments and also the factors that have influenced the process through the construct of customer satisfaction. Examining the different factors impacting the diffusion of mobile payments is the goal of this study. Both the external factors that could have affected the adoption process and the personal factors influencing adoption are examined. This chapter will shed light on the growing digital payment ecosystem to include mobile payments as well as the benefits of doing so. It will also highlight the causes that have influenced the process in relation to the customer satisfaction construct.

The subject's literature review examined at studies looking at the payment channel transition to see if there was a discernible shift in the country to accept digital forms of payment, as well as consumer opinions of digital banking and the factors behind the shift. The literature review's original focus was on how India's transition to digital payments was developing. To better comprehend global patterns related to the evolution of the move from traditional payment channel techniques to mobile payment channels, experience from various jurisdictions throughout the world was studied. Some of the existing literature is included in this chapter; it is primarily available in the geographical regions of Asia (including India) and Africa, with Europe following suit. This might be because the use of mobile payments has extended more widely across Asia and Africa. The literature study indicated that most research was based on the TAM (Technology Acceptance Model). The literature reviewed in this chapter is primarily from Asia and Africa, however some study has also been done in Europe. This constitutes the initial segment of the literature review, as elaborated in the ensuing paragraphs.

Mobile payments are a disruptive technology that's also incredibly user-friendly and have grown in popularity in some areas. The expansion of mobile payments has been facilitated by these increasing availability of a digital marketplace as well as the emergence of a supportive digital economy. As a result, it was deemed imperative to examine the ecosystem-level factors that have aided in the usage of this technology, as they demand a more thorough understanding than employing the Technology Acceptance Model to examine the limited number of individual components. The five elements of the Diffusion of Innovation Model—Relative Advantage, Complexity, Compatibility, Observability, and Trialability—have been investigated under the Diffusion of Innovation Theory in order to achieve this goal. Examining the literature on these topics is the focus of the second half of the review.

2.2 UNDERSTANDING THE CHANGING PAYMENTS LANDSCAPE TO INCLUDE MOBILE PAYMENTS

Numerous scholarly publications and theses have investigated and determined that, due to a number of circumstances, there was a movement in the nation's payment practices toward digitization.

A 2020 academic paper with the title "View on A Study on Cash, Less Cash and Cashless Economies the Indian Scenario (*View of A Study on Cash, Less Cash and Cashless Economies the Indian Scenario Mathavan Kartikeyan.Pdf*, n.d.), concluded that a less cash economy is far more feasible, efficient, and useful than both totally cashless and cash-based economies. People appear to be more accepting to the idea of a cashless economy and find it easier to adjust to. The study was limited to only the urban population. Subsequent research endeavours should focus on analysing the elements that contribute to these developments and may influence users' perceptions of digital payment methods.

The article Cash to Cashless Economy: Paradigm Shift in Consumer Behaviour published in the Journal Our Heritage (Sharma, 2019) showed that a research of customers polled in Patna Sadar Block found that many of them are aware of digital payments and that fewer individuals are visiting bank offices, even if the number of transactions occurring daily has not changed but that is consistently

rising. . The study was limited to the Malls and Banks in Patna Sadar Block. Further research could examine the potential to go cashless and efforts must be initiated by Government and stakeholders in identifying the factors for successful diffusion of digital payments.

The article “ Cashless Economy in India: Challenges Ahead” published in International Journal of Commerce"(Hasan et al., 2020) showed that just 17% of people undertake cashless purchases, despite the government's efforts and the introduction of numerous digital payment systems to make the process simple and sustainable. Lack of infrastructure and knowledge were frequently identified as problems. According to the assessment, mobile banking is becoming more popular in India and is preferring to bank branches due to their convenience. However, there is still a lot of untapped potential in the population that could be leveraged to spread the diffusion and garner increasingly bigger benefits. The sample size for the study was 70, which was too small for a diversified country like India. The whole research was conducted in Aligarh district. There was scope to study whether the Mobile Banking Service can spearhead the movement towards a less cash economy in other populations/ jurisdictions.

The article "A Move towards Cashless Economy: A Case of Continuous Usage of Mobile Wallets in India published in Scientific Research Publishing (Routray et al., 2019) revealed that perceived security is highly impacted by the mobile wallets' system and service quality. The continuing intention to use among users of mobile wallets was found to be significantly influenced by perceived security and utility. The perception of mobile wallet users at a specific moment in time is determined by this study. Second, the sample population may not accurately reflect how the general public views mobile wallets because it was restricted to young people who used them and lived in Delhi and the National Capital Region (NCR) in north India. According to the report, there is a growing trend toward mobile banking acceptance. Further scope of this research was possibility of Longitudinal study to be conducted to understand change in perception of wallet users. The specific factors of mobile banking as an instrument for effecting change needs to be explored.

The academic article “A study on cash, less cash and cashless economies -the Indian scenario” 2018 (Sivakami, n.d.) revealed that a less cash economy is feasible, practical and much more efficient than a cash-based economy and a completely cashless economy. It was observed that people are open towards the concept of a less cash economy and find it easier to adapt to. Limitations: India’s population resides in the rural areas, and the research is limited only to the urban population. demonstrated that a less cash economy is far more efficient and feasible than both cash-based and cash-only economies. People are receptive to the idea of a cashless economy and find it easier to adjust to, according to observations. The study was however confined to only the people of a geographical area in the urban India. The sample size is also limited to only 129 samples which also restricts the research. This would require a more rigorous examination with larger samples and in other jurisdictions as well While the study concludes that the digital payment could be the tool for achieving less cash economy, the factors influencing the process objective remains to be examined.

The Ph.D. Thesis “A Study on the Analysis of growth pattern of cashless transaction system: an evidence from Lucknow city” (*Vally Divya.Pdf*, n.d.)concluded that Cash Less Transactions is the way forward However, there was a need to educate the users about the differentiating factors of the Cashless Transaction System. The strategy should be to emphasize on its differentiating characteristics. The Researcher in this study has assumed that the information provided by the People of Lucknow city is transparent and accurate. However, there can be constraints while sharing information by the Public of Lucknow for general and academic survey. As the study concludes that Cash less Economy is the way forward for the country, there is a need to delve further into which payment option could lead to better adoption.

The academic article on Challenges and Opportunities experienced in moving from Cash to Cashless Economy in International Journal of Current Trends in Science and Technology (India) (Akram, 2017) concluded that Cashless transactions are beneficial for the citizens and the Government by securing the transactions through immediate receipt generation of the transaction as well as

leading to efficiencies by being time saving. The study was a brief study of various Payment system products and Government initiated schemes to facilitate digital payments.

The academic article Understanding cashless payments in India (Mukhopadhyay, 2016) According to its research, there is a considerable growth in cashless payments as more payments are directly paid to the account. As a result, while a positive "shock" to the development of a key network is crucial in the short term, cashless transactions only rise in a steady-state equilibrium when account inflows are consistent. The research is predicated on surveys that Global Findex carried out in 2011 and 2014. In India, the most fascinating problem to be tackled is probably how the infrastructure for cashless payments can support financial inclusion.

2.3 ADOPTION OF DIGITAL PAYMENTS (INCLUDING E-BANKING AND MOBILE PAYMENTS)

The adoption of digital payments, such as mobile payments and e-banking, was also explored from a variety of perspectives by the journals, with varying conclusions and frameworks for distinct demographics.

The article "A Study on Digital Payments in India with Perspective of Consumer's Adoption" published in International Journal on Pure and Applied Mathematics 2018 (*Vally Divya.Pdf*, n.d.) indicate that the deployment of technology for digital payments has improved the performance of the banking sector and is able to achieve the motive of a cashless country. The study gives emphasis to the percentage of awareness on maximum utilisation of technology. It suggested that banks should take effective measures in creating awareness towards the effective usage of technology and security. The core data for the study's goals came solely from samples that were located in Hyderabad. Hyderabad is one of the most important cities in the nation and a commercial centre for south India, however the 183 samples that were chosen from the city do not provide a comprehensive picture of the nation's population.

Although the study comes to the conclusion that digital payments could be a useful instrument for reaching a cashless economy, it is still necessary to investigate the causes that are driving this trend.

The Ph.D. Thesis *E-BANKING: it's impact on customers – an empirical study of selected banks in Goa* (Vasudeva, 2017) demonstrated that the use of e-banking technologies is significantly influenced by gender, with males generally being thought to have a higher adoption rate. Customers who worked overseas showed a high degree of acceptability even if (local) residential status did not demonstrate a meaningful relation. The use of different e-banking technologies was also significantly influenced by age, with younger people being more inclined to do so. The public, private, and banking sectors all displayed encouraging signs of e-banking technology adoption. Although there are many different e-banking technologies offered by commercial banks, the well-known technologies like ATM cards, mobile banking, and internet banking have only been taken into consideration for the purposes of the study. A paired qualitative study about the costing systems adopted by banks in the state of Goa may have offered a different perspective from another angle and would enable to determine additional factors that are persuasive in adopting and influencing the sustainable use of various e-banking technologies. Given that mobile banking was deemed a helpful tool by both bankers and customers, it is necessary to investigate the variables driving its further adoption.

The Ph.D. Thesis on *Usage of Plastic Money and Virtual Wallet as Modes of Payments in and around Bengaluru City* (Pratim, 2017) revealed that the usage was higher amongst the age group of below 30, which steadily declined with age. Further, mobile wallet has a far greater acceptance amongst users and a higher usage and adoption. The study is confined only to credit card, debit card, and virtual wallet services. The study has considered both users and non-users of such modern banking gadgets. The users and non-users are randomly surveyed. Geographically, the study is in and around Bengaluru city. The study examines the acceptability of a channel of payment other than cash and establishes the acceptability of virtual wallets, which are a part of mobile payments. The findings are useful in the coshowed that usage was highest

among those under thirty, and that it decreased with age. Additionally, people accept mobile wallets significantly more readily, and they utilise and adopt them at higher rates. Only virtual wallet, debit card, and credit card services are included in the study. Both users and non-users of these contemporary banking devices were taken into account in the study. Surveys are given to users and non-users at random. The study's geographical scope is limited to Bengaluru and its environs. The study establishes the acceptability of virtual wallets, a component of mobile payments, and looks at the acceptability of a payment channel other than cash. The results are applicable to the subject matter of this study and may also be investigated in other jurisdictions as well text of the topic of this research and can be examined in other jurisdictions as well.

The Ph.D. Thesis “A Study on customer perception towards mobile banking in Punjab” (Vasudeva, 2017) reveals in its findings that mobile banking service is growing in India. Awareness about different M banking services was there. It was also found that customers had enthusiasm to perform banking transactions using mobile phones and rate m-banking even better than online banking. It was further revealed that m-banking was preferred over locational convenience of bank branches. These findings have shown a great potential for m-banking services in India. The study's conclusions show that mobile banking is becoming more popular in India. There was knowledge of the various M banking services. Additionally, it was shown that users were eager to do bank transactions via mobile devices and thought m-banking was superior to online banking. It was also discovered that m-banking was favoured above bank branches' convenient locations. These results indicate that m-banking services in India have a lot of promise. Limitations of the study: Because of the disparity in the researchers' understanding, there may be restrictions on how their findings might be interpreted. The convenience sampling technique was used in the current study because the data regarding m-banking users was not accessible in advance. Respondents who were present in the bank branches during the visits filled out the questionnaires.

The academic article "Mobile Banking Adoption in a Developing Country like India published in Drishti Kon: A Management Journal

"(Mobile_Banking_Adoption_in_a_Developing.Pdf Gandhi Sheroy.Pdf, n.d.) indicates that there is a lot of room for growth for the developing notion of mobile banking. Security-related worries serve as a barrier at the same time. The perceived utility of the technology and its rapid advancement are the driving forces behind the adoption of mobile banking. As an alternative to holding and using cash, mobile banking payments are made using mobile banking; the study's findings indicate that the service cost, perceived compatibility, and reference group influence all positively influence this behaviour. Limitations: The size of the sample taken is not sufficiently large to generalise the results of this study. Also, the study was limited to the respondents using mobile banking services in major metropolitan cities in India. The components of the ecosystem that were investigated in this study were relative advantage, compatibility, and observability. In addition to the TAM components, these societal and external aspects also need to be looked at. This can be investigated further in different jurisdictions and with different models.

The study in the article "Factors Affecting Mobile Banking Adoption Behaviour in India published in Journal of Internet Banking and Commerce (Senthilkumar, 2016) indicates that if banks are able to meet customer expectations, then customers will use mobile banking. Although it was believed that bank customers received a high degree of security, speed and ease of use were seen to be disincentives. In the future, when m-banking is being investigated, it is also suggested that demographic factors such age, income, experience, education, and education be employed as moderating variables. Since 2012, there have been changes to the mobile internet landscape, thus it makes sense to review the compatibility and usefulness elements.

In study in the Ph.D. Thesis on "Study on Customers Perception towards Mobile Banking Services with reference to Namakkal District, Tamil Nadu, India" (Senthilkumar, 2016) finds that even while mobile banking services have advanced, users still struggle to stay up to date with the constant updates in technology and have a sense of unease when using these services. Frequent training and awareness campaigns have been advised. Limitations: Customers

of a few banks in Tamil Nadu's Namakkal District serve as the study's base. Respondents' perceptions were limited to mobile banking services.

Vital components of the diffusion process are perceived usefulness, compatibility, and awareness. It is possible to investigate these findings in different jurisdictions.

The Ph.D. Thesis “A study of awareness and perspective of mobile banking - in Southern Rajasthan” (Behl et al., 2016) disclosed two sets of results: a set from the bank employees and a set from the clients. The bank authorities felt that the new technology required specialised training in order to function, but they also felt that it increased profitability by decreasing transaction costs and increasing service efficiency for remote clients. Conventional banking was deemed to be the optimal choice by the bank officials. The clients thought it was a trustworthy and practical tool for improving their money management. Employees in the banking industry have reported benefits from mobile banking. Positive customer perception was also discovered. Limitations: This study is restricted to a small number of clients in south Rajasthan; variables such as computer literacy, account type, and bank type were not taken into account; instead, the focus was on the degree of customer cooperation and information supplied.

A positive impact of mobile banking is observed in employees of the banking community. Customer perception also is favourable. The study can be replicated in other jurisdictions as well.

The academic article "Enablers and barriers of mobile banking opportunities in rural India: a strategic analysis published in International Journal on Business Excellence" (Behl et al., 2016) concludes that though there have been advancements in the mobile banking services, the customers were having difficulties keeping themselves abreast of the frequent updates in the technology and the feeling of insecurity in using these services. The perception of respondents was towards mobile banking services only.(Behl et al., 2016) Limitations: The study was limited in its scope to Indian rural context and therefore results may vary depending on the geographical area and the economies of different jurisdictions.

The academic Article "Analysing the Barriers towards Sustainable Financial Inclusion using Mobile Banking in Rural India published in Indian Journal of Science and Technology" (Begum, 2015) demonstrate that user and potential user perceptions play a major role in determining how mobile banking technology is used. The findings show that perceptions of risk aversion, utility, and convenience of use all have a significant impact on how widely mobile banking is used in rural areas. The outcome also suggests that they would become more adept at using mobile banking if they used it more frequently. Future research in this area is warranted as it would decrease their dependency on bank branches and perhaps lead to a quick growth in usage and adoption. Limitations: The study is limited to the district of Ajmer.

The study in the Ph.D. Thesis "Adoption and usage of innovative techniques: a study on mobile banking in Coimbatore city" (Begum, 2015) concluded that younger age groups with at least a higher secondary education level were the ones most likely to use mobile banking. Although they thought mobile banking was simple to use, the consumers wanted more "security" and equitable customer care procedures. It was discovered that the barrier preventing mobile banking uptake was actual risk. Attitude, perceived utility, and perceived ease of use all strongly influenced the desire to utilise mobile banking. It also implied that banks should focus on enhancing security and safety in order to win over customers' trust. concluded that younger age groups with at least a higher secondary education level were the ones most likely to use mobile banking. Although they thought mobile banking was simple to use, the consumers wanted more "security" and equitable customer care procedures. It was discovered that the barrier preventing mobile banking uptake was actual risk. Attitude, perceived utility, and perceived ease of use all strongly influenced the desire to utilise mobile banking. It also implied that banks should focus on enhancing security and safety in order to win over customers' trust. Limitations: It had not looked into the financial viability of mobile banking technology or looked into additional adoption-promoting and adoption-hindering elements for different mobile phone services.

The study undertaken in the Ph.D. Thesis “ Influence of technology in banking a customer centric study with special reference to Kerala “ (Raju, 2014) demonstrated that there were significant differences in the informational and transactional nature of all Self Service Banking Technology (SSBT) services, including ATM, Internet Banking, and Mobile Banking; variation in the respondents' use of SSBT services across categories based on age, sector, region, and computer/internet experience, as well as differences in their motivational factors across demographic profiles and the role that bank awareness policies did play in influencing its use. This study, however, was limited to Kerala's retail banking clients; corporate bank respondents were excluded because banking operations are dependent on the policies and practises of the relevant business organization. Additionally, clients that use at least two SSBT services provided the samples for this investigation. Only respondents from public sector banks (PSB), old private sector banks (OPB), and new generation banks (NGB) were considered for the study; respondents from foreign banks, which have a different banking approach and culture, have been kept outside the study's ambit. The perceptions and issues of those who use only one SSBT service have been purposefully excluded from this research. Since the study was carried out before 2016, there is room for a more thorough investigation of the problems related to more recent digital banking technologies like UPI (introduction of the UPI platform).

In the Ph.D. Thesis on Study on banking services through e-channel (Goyal, 2009) , The perceptions of general banking service quality with reference to gender, education, age groups, vocations, income classes, and spatial backgrounds were shown to be significantly similar. The assessment of the service quality of public and private sector banks differed, with the latter being thought to provide better services overall, and there were notable variations in service quality among all banks. The study's scope was restricted to Indian banks that have operations in Punjab. Eight banks were included in the study's scope. To find out if there are any notable differences between bank clients in other geographic areas, the investigation could be expanded. The study is significant because it sheds light on how Generation Y students perceive trust,

which is a key aspect in diffusion. The results might need to be reviewed, though, as a lot has changed since the study happened.

The Ph.D. Thesis on Adoption Behaviour of Indian Customers Towards Mobile Banking Services (Verma & Nehra, 2016) customers' adoption behaviour toward mobile banking is significantly and favourably impacted by factors such as perceived compatibility (PCOM), perceived service cost (PSC), reference group influence (RGI), attitude, and perceived risk, according to the study's findings. According to the study, perceived utility and perceived simplicity of use, along with observability and RA, have a big impact on how widely people use mobile banking. Although generalisations of the research's findings may not be made; the study was conducted in Delhi NCR, which serves a broad clientele from around India. This study is significant because it is conducted in a different time period—that is, prior to the launch of the UPI platform—but it still falls under the same jurisdiction. Pre-UPI products, such as Internet banking and IMPS, were examined for adoption. Furthermore, rather than focusing on the components of the IDT Theory, the study examines adoption behaviour. Notwithstanding, the study incorporates several exogenous factors, such as the influence of the reference group.

The Ph. D Thesis on E-Banking practices and Customer Satisfaction – in Thanjavur district of Tamil Nadu: an empirical study (Dhandayuhapani, 2012) found that strong security is offered for online banking transactions by both public and private sector institutions. In terms of e-banking speed, content, and design, most respondents in both public and private sector banks said that they were not very satisfied. As a result, the study suggests that there is much room for improvement in the usability, design, and speed of online banking. Additionally, there was greater satisfaction with ATMs among private sector bank customers. The study is restricted to commercial banks located in Thanjavur district only; the study is based on the opinion survey of customers. But the opinion expressed may differ according to time and situation. The findings of the study can't be generalised as the study is made covering a limited area, namely, the Thanjavur district of Tamil Nadu. The same study could be extended to other jurisdictions and other products of digital banking, including

mobile banking. The scope of the digital and mobile banking services has expanded over the years; thus, the study could be revisited.

2.4 THE LITERATURE REVIEW IN JURISDICTIONS BEYOND INDIA IS LISTED BELOW:

The Article on World Antecedents of Trust in Mobile Banking Amongst Generation Y Students in South Africa (van Deventer, 2019) found that although Generation Y students' trust in mobile banking was statistically significantly positively influenced by perceived structural assurance, retail bank integrity, ease of use, and trust propensity, their perception of information quality, system quality, and usefulness had a positive but non-significant effect. The study found that while other characteristics, such as system quality and usefulness, had no discernible effect, relative advantage (easy to use) and compatibility were significant contributors. Non-probability convenience sampling was used to survey study participants, which restricts the capacity to objectively evaluate the results. Additionally, the study employed a cross-sectional research methodology. Thus, a longitudinal study might yield more accurate results for this kind of study and could be considered for future research.

The academic article "Mobile banking use: A comparative study with Brazilian and U.S. participants" (R. F. Malaquias & Hwang, 2019) suggests that in both countries, perceived ease of use and trust are important variables. However, whereas social influence is a meaningful construct in Brazil, respondents from the USA do not significantly benefit from it. This study, however, was limited to the examination of just two nations with disparate ICT indices and development levels. (ii) Undergraduate students' responses make up the dataset. (iii) Only two universities' worth of respondents participated in the survey. Predictive modelling should be investigated further to examine users' perceptions about the adoption of mobile banking. However, the outcome shows that mobile banking will be accepted as a future payment system instrument in many geographical jurisdictions. The same can be extended to other jurisdictions and to overcome the constraints.

The article on “Mobile Payment with Alipay: An Application of Extended Technology Acceptance Model” (J. Li et al., 2019) showed that people's intents to use Alipay are mostly influenced by how risky, easy, and beneficial they believe the service to be. An online survey was done by a professional survey business on behalf of the researcher. This might reduce the sample's diversity. To increase the diversity of the sample, more avenues and approaches could have been used to administer the survey. Only the factors influencing consumers' intentions to utilise Alipay were investigated in this study. In actuality, a large number of people used Alipay. Therefore, research on the variables influencing their Alipay usage patterns is critical. Only the impacts of perceived utility, perceived ease of use, and perceived risk were taken into account in this study. Other factors like habit and social influence were not taken into account. Thus, it is possible that more factors could be investigated and explored in further research. The study shows that people's views matter when it comes to using mobile banking, and as China and India both have similar levels of multicultural diversity, studies need to focus on this issue.

The academic article “Review of Mobile Banking Solutions Including the Analysis Of Survey Performed Among The Individual Users” (Panas & Wilczyńska, 2019) concluded that educated and professionally employed individuals are more enthusiastic about mobile payments than the typical citizen of a given nation. However, it can be anticipated that mobile payments will steadily gain traction worldwide, not just in Poland, based on the forecasts of the report and the experts cited in this article. However, statistically significant studies must be conducted in order to draw broader conclusions on this topic; the substantial association between the adoption of mobile payments and the number of mobile devices per capita has not yet been determined. The area of research that needed to be explored was as follows: The relationship between mobile device penetration rate, mobile connection speed, and mobile banking adoption in the chosen country could be the focus of this in-depth analysis. Given the rapidly evolving global perception of mobile banking, quick and frequent results publication is necessary, primarily to accurately reflect the rate of significant changes in this field.

The article “A Study of the Factors Affecting the Prospect and Implementation of Cashless Banking System with Special Reference to Selected Commercial Banks in Nigeria” (J. N. Lee et al., n.d.) concluded that the possibility of implementing the cashless policy in Nigeria is guaranteed by the mechanism and supporting systems of cashless banking provided by banks and their role in the country; customers' awareness of cashless banking facilitates a favourable perception that ensures the possibility. The study suggested that clients should receive more sensitization. The study, however, was restricted to an empathetic analysis of the variables influencing the prospects and execution of the cashless banking system, specifically with regard to a few Nigerian institutions. The perception of mobile banking's utility and ease of use is seen to have contributed to its adoption. This can be extended even further to account for more jurisdiction and variables. The study, however, was restricted to an empathetic analysis of the variables influencing the prospects and execution of the cashless banking system, specifically with regard to a few Nigerian institutions. The perception of mobile banking's utility and ease of use is seen to have contributed to its adoption. This can be extended even further to account for more jurisdiction and variables.

The study in the Ph.D. Thesis on Factors Affecting Indonesian Consumers to Switch, Using Mobile Banking and Internet Banking Service (Fahmi et al., 2018) demonstrated that consumer desire to switch to mobile banking services was significantly positively influenced by perceived utility and perceived ease of use characteristics. Nevertheless, because the research topic is so limited, generalisations to the actual circumstances of Indonesia cannot be made. This is especially true of studies on customer switching behaviour, which contain numerous characteristics that are absent from this study. There is demonstrated that consumer desire to switch to mobile banking services was significantly positively influenced by perceived utility and perceived ease of use characteristics. Nevertheless, because the research topic is so limited, generalisations to the actual circumstances of Indonesia cannot be made. This is especially true of studies on customer switching behaviour, which contain numerous characteristics that are absent from this study. The factors of TAM

have been considered as factors. However other external factors have not been considered. There was room for further thorough investigation.

The academic article on “Poverty and Migration in the Digital Age: Experimental Evidence on Mobile Banking in Bangladesh “published by the International Growth Centre (J. N. Lee et al., n.d.) showed that self-efficiency and favourable environmental factors had a positive impact on usefulness and ease of use. The perceived ease of use and usefulness of mobile banking have led to its adoption. The survey was carried out in a distant Bangladeshi rural area. The suggested model may be the subject of future studies elsewhere, particularly in developing nations.

In the article "Understanding Consumers' Mobile Banking Adoption in Germany: An Integrated Technology Readiness and Acceptance Model (TRAM) Perspective published (Khadka & Kohsuwan, 2018). The research findings indicate that the adoption of mobile banking services among German consumers is significantly influenced by the personality, cognitive, and behavioural qualities of the consumers. The adoption of an online self-selected sampling approach may have restricted the samples to a small number of German regions. A longitudinal study was recommended by the study to investigate the use of mobile banking over a longer time frame. The study presented opportunities for further investigation into other pertinent factors influencing the uptake of mobile banking. The conceptual model that resulted from the study should also be expanded in order to comprehend how other technological goods and services, including e-wallets, smart watches, smart keys, and so forth, are adopted.

In a Conference paper on “An assessment of the impact of mobile banking on traditional banking in Nigeria” (H. U. Khan & Ejike, 2017), Nigeria is moving closer to achieving its 2020 e-commerce objective, yet the nation was experiencing obstacles in its efforts to advance social upliftment and technological advancement. Studies have indicated that behavioural characteristics are essential in persuading individuals, whether they are end users or users in organisations, to adopt new technologies. It is therefore

possible to draw people to the new technical endeavours by formulating policies and programmes that tackle social and cultural systems on a broad scale. In order to realise the country's objective, the study suggested that methods for educating people and bringing the benefits of technology to communities be implemented. Research projects and initiatives that are region-specific can significantly alter this field, especially in Nigeria, where cultural practises and traditions have a significant influence in limiting citizens' exposure to the most recent advancements. Societal change can be brought about in a methodical way by conducting extensive surveys, analysing the results, and implementing programmes that are periodically directed towards this goal. There is evidence to suggest that mobile phones can effectively reduce poverty.

In a study on “Factors influencing adoption of mobile banking by Jordanian bank customers” (Chaouali et al., 2017) It was observed that the adoption of mobile banking technology was found to be significantly influenced by behavioural intention, performance expectancy, effort expectancy, facilitating factors, price value, hedonic motivation, and trust. The convenience sample of Jordanian banking customers in just two cities—Amman and Al-Balqa—was used to acquire the data for this study. This could have a detrimental impact on the results' generalizability to other cities. The sample description also revealed that the majority of the study's respondents were young, well-educated, with a middle-class salary, and had sufficient computer and Internet expertise. As a result, questions are raised about how well the findings apply to other contemporary demographic divisions with distinct features (e.g., age, income, education level, gender, and technology experience). This study only covered one online banking channel (i.e., mobile banking). This could mitigate the applicability of the current study's results to other types of electronic channels across other contexts. Further, the results of the current study were based on cross-sectional data, raising questions about the applicability of these results in the long term.

The paper “Explaining adoption of mobile banking with the theory of trying, general self-confidence, and cynicism” (Chaouali et al., 2017) argues that attitudes toward learning to utilise mobile banking and success are favourably

correlated with attitudes toward mobile banking, while attitudes toward failure are adversely correlated with attitudes toward mobile banking. Additionally, the cynicism of customers is proven to be a key component in this study that influences attitudes and intentions to adopt mobile banking. But this sample is limited to Tunisia. Another drawback is the exclusion of actual behaviour since some academics disagree with the idea of using intention as a stand-in for adoption behaviour. The study has not included any external factors and has simply looked at two factors: cynicism and self-confidence.

The academic article “An empirical study on trust in mobile banking: A developing country perspective” (R. F. Malaquias & Hwang, 2016) noted that although mobile banking had the potential to benefit bankers as well as customers, Brazilian undergraduate students appeared to lack trust in banks due to the low level of disclosures made by Brazilian banks and the lack of awareness created by the banks about the security aspects of mobile banking. It was suggested that improved conduits and mechanisms for communication would have a favourable outcome. It was suggested that in order to determine whether this association is typical of developing economies, scholars investigate it in other regions. Users know that mobile banking is an effective tool of the future with vast potential, and they are beginning to adjust. The requirements for increasing the utilisation had to be mapped out by the service providers. Planning for a more seamless transition to a cashless economy through mobile banking was advised. A single university's undergraduate students were the only surveyed for this study. Future research should examine the relationship between technology uptake for both graduate and undergraduate students.

In a study presented in the academic article “Understanding the Determinants Of Mobile Banking Adoption: A Longitudinal Study In Brazil (F. Malaquias et al., 2018), the findings show that several determinant elements may vary over time, and there is a tendency for the use of mobile banking to rise. In the case of the emerging economy included in this study, the perception of these factors also appears to shift with time. Since time affects trust and usability, more research can examine how the relationship between using mobile banking and its determinants changes over time.

The report on “Mobile Phone Penetration, Mobile Banking and Inclusive Development in Africa” (Asongu & Jacinta Nwachukwu, 2016) , assessed the role of mobile phones and mobile banking in decreasing inequality in 52 African countries. The results of a study covering 52 African nations point to the equalising of the income-redistributive impact of both "mobile phone penetration" and "mobile banking," with mobile banking having a greater income-equalizing effect than mobile phone penetration. In order to alleviate Africa's tragic extreme poverty, the study's proposed routes for reducing poverty were essential to include in the post-2015 sustainable development agenda. It is clear that more research is needed on (i) additional inclusive development determinants and (ii) comparative case studies with a focus on individual countries in order to achieve more focused policy implications.

A working paper on “An investigation of users’ continuance intention towards mobile banking in China” (Yuan et al., 2014a) identifies the following essential beliefs: task technology fit, perceived usefulness, perceived ease of use, perceived risk, and satisfaction. Confirmation, perceived utility, and perceived risk all contribute to satisfaction and continue to influence intention to continue. A brief snapshot of user behaviour was used to perform this study, which was carried out in the eastern regions of China. The behaviour of users is ever-changing. Future studies should examine the potential impacts of additional variables (such as intimacy or familiarity) on consumers' decision to stick with m-banking services. A longitudinal study can be used in future research to compare and analyse user behaviours across time, providing a more comprehensive understanding of users' ongoing usage.

Academic Article on “The Perception of Mobile Banking Adoption: The Study of Behavioural, Security, and Trust in Thailand” (Chuchuen, 2016) indicates that the adoption of mobile banking is positively impacted by customer behaviour, perceived utility, and trust. The scope for additional research was recommended to take into account a few variable factors that could be used in subsequent investigations to test the other dimensions. Additionally, the study needed to be able to replicate the process in other kinds of mobile applications, like M-payment and M-commerce.

The article on Cashless payment and economic growth published in *Financial Innovation* (Tee & Ong, 2016) stated that while it may not be feasible to completely replace the current cash-based payment system in the near future, ongoing advancements in technologically enabled payment systems would undoubtedly increase the number of people in society who can use cashless payment methods. Only in the long run will the effects of switching to cashless payments on economic development become noticeably apparent. Therefore, any regulation that encourages cashless transactions won't have an immediate impact on the economy. The research on the adoption of cashless payment in five EU countries was restricted to card payments, checks, telegraph transfers, and electronic money (Austria, Belgium, France, Germany, and Portugal). The survey reaffirmed how much potential mobile banking has to offer both current and potential unbanked users. Deeper research, though, might make it easier to implement mobile banking technology successfully.

The academic article on Understanding the impact of m-banking on individual performance (Tam & Oliveira, 2016) according to its study, the importance of use and user satisfaction is highlighted, and potential users of m-banking services are drawn to and retained based on their individual performance, or rather the efficacy and efficiency with which they carry out banking operations. This study was conducted in Portugal, a country in Southern Europe. Although previous research has suggested that students are representative of typical consumers (Remus, 1986), it is possible that students do not accurately represent the population of all potential m-banking users, which could compromise our findings. It recommended that cross-country data collection be done in future studies to improve generalisation. Future studies could use non-students as the sample; they might also look at the research model at various points in time and use longitudinal data to gain further understanding of how people use and perform individually with m-banking.

The article "Mobile Banking in Russia: User Intention towards Adoption" (Belousova & Chichkanov, 2015) suggests that banks concentrate mostly on enhancing customers' perceptions of the use of their mobile banking. Customers want comprehensive capability that is comparable to other forms of

financial services; they also want their banking transactions to be accessible quickly and easily. The model needs to be tested again on a bigger sample that spans a range of socioeconomic strata, as the survey sample is solely representative of the group of mobile Internet users. Furthermore, rather than actual use of mobile banking, the main variable was intention to use. It would only be feasible to switch to a new variable when doing longitudinal research because the primary variable was the desire to utilise rather than actual mobile banking use.

The results presented in the Conference paper in the article “Consumers Attitude towards Mobile Banking in Bangladesh” (Islam & Hossain, n.d.) , shows that mobile banking is quite popular in Bangladesh and that banks and mobile network operators have a lot of room to grow. Once more, customers in this nation place a high value on infrastructure and express reservations about mobile banking's customer service options. Due to the study's disregard for a sizable rural population, the sample size was not indicative of Bangladesh's overall population. The sample is biased toward men, which may be related to Bangladeshi culture's typical tendency for men to perform outside tasks. This research only looks at the elements that influence motivators and inhibitors on behavioural intentions, which may limit the research's generalizability. Future research could involve a larger-scale investigation with a more representative sample in order to confirm the study's contributing components and improve the research conclusions' generalizability.

The conference paper on State Of Mobile Banking In Tanzania And Security Issue (Masamila, 2014) It was concluded from the study that, in addition to giving consumers, companies, and governments greater financial control, electronic payment systems have demonstrated to support economic growth and contribute to a stable trading system, helping to drive growth and create jobs. When compared to alternative payment methods, mobile banking transactions in Tanzania are getting more and more efficient, dependable, and useful to players in the ecosystem. Tanzania's undeveloped payment infrastructure will be helped by mobile banking to advance beyond the current paper-based payment methods." The study emphasises how crucial mobile payments are as

a competitive substitute for traditional payment methods in developing and emerging market economies with inadequate banking infrastructure.

The academic article “The Mobile Banking and Payment Revolution” 2013 (S. Gupta, n.d.) According to the study's findings, mobile technology is revolutionising the global banking and payment sectors by giving unbanked consumers in developing countries access to new services and adding convenience for current bank customers in developed markets. This might open up a sizable unexplored market. The people who are prepared to innovate and invest resources, along with those who possess a thorough understanding of local markets, customers, and regulations, are likely to emerge victorious in the mobile banking and payment space. The study demonstrated the viability of mobile banking and its significance as a means of delivering financial services. Additional study in this field may yield some cash inventory planning techniques based on usage and ensuing behaviour.

The academic article on "Mobile Payment Adoption: An Empirical Investigation on Alipay" (Xu et al., 2023) according to their analysis, there is a correlation between higher credit card transaction activity and profitability and the usage of mobile channels. The beneficial correlation grew over time and was more pronounced for customers with medium-sized incomes. It was found that the PC payment channel was supplemented by the mobile payment channel, which served as an offline (physical card) channel's replacement. Over time, there is a rise in complementarity and substitution effects. In order to investigate the mechanism behind the increased transaction activities, future research may combine consumers' browsing and click-through data with mobile payment consumption. In the long run, the adoption of mobile payments may be linked to other significant changes in consumers' consumption behaviours; a study conducted over a longer time period (say, five to ten years) may provide additional insights into these changes.

The academic paper “Consumers’ perceptions of mobile banking continuous usage in Finland and South Africa” (Shaikh et al., 2015) found that consumers in two jurisdictions trust the mobile banking service after conducting a

comparison analysis. Overall, the findings showed that using m-banking services had a favourable impact on bank customers' commitment. The implications of continuous m-banking usage found are not exhaustive, and future study should take into account additional results of continuous m-banking usage. However, findings cannot be widely generalised, and cause-and-effect linkages cannot be established.

The academic paper published in 2018 "Poverty and Migration in the Digital Age: Experimental Evidence on Mobile Banking in Bangladesh" (J. N. Lee et al., n.d.) shows how technology can enhance social and economic conditions, but it is important to remember that not everyone can accept technology, particularly the most illiterate and impoverished groups. Adoption of technology has the potential to change family dynamics by introducing new expectations about what is reasonable and what is possible from others. Our data implies that those changes had a price, at least for urban migrants. The flow of people and money raises more general concerns regarding the makeup of households. A home is often defined as a group of people who live together and share meals on a regular basis. However, with the advent of digital technology, a child residing in a city hundreds of miles away (or even abroad) can stay in regular contact and take part in their parents' financial lives on a daily or weekly basis. Given the increasing velocity and prevalence of mobile banking transactions and the low cost of communication, scholars may need to start reevaluating conventional ideas about the household.

The academic article "M-Pesa: A Case Study of the Critical Early Adopters' Role in the Rapid Adoption of Mobile Money Banking in Kenya" (Ngugi et al., 2010) According to the report, the bulk of Kenyans now had access to mobile phones thanks to the mobile revolution, and the country's sizable unbanked population was also a driving force for adoption. M-PESA took advantage of this opportunity and achieved remarkable success by reaching the remaining population through early adopters. In Kenya, M-PESA has completely changed how people can obtain financial services. The M-PESA example demonstrates how early adopters pushing technology for free may now be used to profitably extend financial services at relatively cheap cost to the impoverished unbanked

sections at the base of the social pyramid. The instance of M-PESA demonstrates how unconventional approaches, like as cell phones, have the power to completely transform how business is conducted and revenues are generated in Africa. In order to highlight the difficulties and the future direction of M-PESA, this sample adhered to Safaricom's goal of focusing on the youth and tech-savvy demographic. The population may not be perfectly representative of the broader Kenyan population, which is a weakness of this approach.

2.5 BROAD CONCLUSIONS

The literature Review examined above was in various periods of time. The literature review indicated that the mobile banking is in various stages of adoption as per the period of study (pre 2015/16 and 2016-2023). The research was conducted across nearly 25 years, during which time the ecosystem saw significant changes due to the introduction of smartphones and the widespread availability of inexpensive mobile data. As a result, following 2015–16, the purpose and adoption have demonstrated encouraging trends in numerous study publications from all countries.

Furthermore, as indicated by the research conducted in the various jurisdictions mentioned above, there may be other elements in the ecosystem that have an impact on adoption in addition to the factors identified by the Technology Acceptance Model (TAM). This offers a foundation for investigating the potential for different external factors in different jurisdictions to potentially affect the TAM characteristics that would promote the diffusion of mobile payments.

The objectives of adoption and diffusion of mobile payments have been diverse as evident from the literature reviewed; objectives of financial inclusion and banking the under banked., reducing dependency on cash, providing more efficient payment channels and offering channels compatible to the younger generation are a few of the reasons observed.

The catalyst for transforming an economy to a digital payment (including mobile payment) economy has been the Central Banks, the local governments, the online marketing giants, the Fintech companies or the local citizens who have made conscious decisions in this regard. It could be one of them or a combination of availability of local catalysts. As always, developments in payment systems infrastructure in the cashless move involves people's money and their safety on account of which the Central Banks of all the countries become part of the cashless/less cash journey.

The absence of inadequate acceptance infrastructure in developing nations has opened doors for Fintech firms and changed the direction of the country's shift toward cashless transactions. Similar to other developing nations, India has experienced inadequate acceptance infrastructure availability, which has created a favourable environment for Fintech businesses offering mobile payment apps. The Reserve Bank of India and the Indian government both favour the shift, but it will be interesting to see how quickly the populace adjusts in order to successfully transition to a digital payment-based economy. The most recent UPI-based mobile payment technology, which serves as the foundation for daily small-value payments, is the tool used to implement this transformation.

2.6 REVIEW OF LITERATURE ON FACTORS INFLUENCING DIFFUSION OF MOBILE PAYMENTS

The focus was narrowed to comprehend the external and/or social elements influencing the spread of mobile payments in light of the preliminary findings. Since more publications have examined the diffusion model outside of India than in that country, all of the diffusion learnings are categorised as follows to help with model comprehension:

The factors found relevant for diffusion of mobile payments published in the academic article "Saudi Arabia Mobile Banking Adoption: Application of Diffusion of Innovation Theory" (Al-Jabri & Sohail, 2012) Adoption was positively impacted by relative advantage, compatibility, and observability. Trialability and complexity had no discernible impact on adoption, in contrast

to the conclusions in the body of existing literature. Adoption suffered from a perception of risk. Students made up 54.5 percent of the mobile banking user base, while 75.8 percent of customers visit their banks 1-4 times a month. Approximately 41 percent of users are between the ages of 18 and 25 and earn SAR 5000 or more. Research Gap: The participants were youthful, well-educated, cognizant of finances, and employed. Trialability and complexity, therefore, had no appreciable impact on adoption. It is possible to extend this to other populations. Adoption was positively impacted by relative advantage, compatibility, and observability. Trialability and complexity had no discernible impact on adoption, in contrast to the conclusions in the body of existing literature. Adoption suffered from a perception of risk. Students made up 54.5 percent of the mobile banking user base, while 75.8 percent of customers visit their banks 1-4 times a month. Approximately 41 percent of users are between the ages of 18 and 25 and earn SAR 5000 or more. Research Gap: The participants were youthful, well-educated, cognizant of finances, and employed. Trialability and complexity, therefore, had no appreciable impact on adoption. It is possible to extend this to other populations.

The factors examined in the article “North India: An innovation resistance theory perspective on mobile payment solutions” (Kaur et al., 2020) concluded that intentions to utilise mobile payment services are adversely correlated with usage, risk, and value barriers, according to research done through the perspective of innovation resistance. The user intents have little to do with the constraints of tradition and image. Because the cross-sectional data does not adequately depict the dynamic nature of retail customer behaviour, the study methodology yielded results that accurately reflect the behaviour of Indian young adults with regard to a single MPS, Paytm. Future studies can evaluate the model using data gathered from first-time users across various geographic and cultural boundaries and age groups in order to get beyond these limitations. Further research should be done on user behaviour with reference to additional MPSs, like wire transfers and mobile banking.

The research paper on “Role of Competition in the Adoption of Mobile Payment among merchants”(Pisani & Moormann, 2018) examined the key elements of

competition that will ultimately encourage retailers to accept mobile payments at the time of sale. Research does not fully account for the involvement of merchants, who are frequently expected to foot the bill for the spread of technology. One particular example of a platform for a multi-sided market where customers and merchants are expected to engage is mobile payment. It was determined that network externalities that can arise among and between the various sides are what determine a platform's success.

The findings of a study conducted in Pakistan's neighbouring jurisdiction were published in the scholarly article "DIFFUSION OF MOBILE BANKING IN PAKISTAN" (Abbas et al., 2019). The majority of the factors, including consumer innovativeness, user satisfaction, social influence, and complexity, did have a significant impact on the diffusion of mobile banking adoption. Perceived risk and self-efficacy, on the other hand, have no bearing on the spread of mobile banking acceptance. This research was quantitative and cross-sectional in nature. This study used a self-administered questionnaire to collect its data. Nonetheless, it was suggested that a mixed-methods, or qualitative, approach would be a useful one for further research in the many settings of mobile banking in Pakistan.

(Chaipoo Pirutana et al., 2010) conducted a comparative study of Internet banking in Thailand and India using the attributes of innovation, namely complexity, compatibility, relative advantage, and trialability. The study was published as "Diffusion of innovation in Asia: a study of Internet banking in Thailand and India." According to the findings, there is a positive correlation between other innovation traits and the intention to use innovative Internet banking in Thailand and India, but only complexity has a negative link.

According to (Galadima Talatu Obed, 2020) scholarly work, "Impact of Diffusion of Innovation On Cashless Transaction Adoption And Continued Usage In Taraba State," social and media influence have a significant impact on how people behave while embracing cashless transactions. As a result, the observability component was crucial to the spreading process.

According to the academic paper "Factors Influencing the Diffusion and Acceptance of Innovation in the Payment Technology Area" (Maria & Zhenquan, 2018), there is a positive correlation between the intention to use technology and the degree of trust, security, and convenience. On the other hand, a negative correlation exists between the intention to use technology and the level of risk.

The scholarly article "Diffusion of Innovation in Asian: A Study of Mobile NFC (Near Field Communication) Payment in Korea and Thailand"(Longyara & Van, 2015) examined a comparative study between Korea and Thailand and found that only complexity negatively correlated with the intention to adopt innovative Internet banking in Thailand, but not with barriers to adoption with Korea; other attributes of innovation showed a positive correlation.

The statistically significant effects of organisational (top management support and employee readiness), environmental (social influence and competitive pressure), and technological (relative advantage and compatibility) factors on the adoption of mobile payment services are included in the academic article on a study conducted in Ghana published in the paper "Effects of a Technological-Organizational-Environmental Factor on the Adoption of the Mobile Payment System" (KWABENA et al., 2021). Additionally, this research demonstrated the beneficial and statistically significant impact of MPS on the performance of SMEs. This study showed that 70% of the variances in MPS adoption may be explained by the TOE factor. This study shows that the top-driven ToE model may also be the mechanism by which the diffusion process occurs. Nevertheless, because this study was restricted to a single nation, additional research may be carried out in other nations to account for cultural differences and to corroborate findings. Additionally, future research can take advantage of the interaction effect between the external environment's moderating role and the adoption of MPS.

The academic article examined the factors in Germany in the article "Nothing but Cash? Mobile Payment Acceptance in Germany" (Baersch et al., 2020). Research has indicated that distinct factors influence the desire to adopt and

continue using a service; whereas novice users are primarily concerned with financial risks, seasoned users are more concerned with performance concerns, making data risk less significant. Furthermore, self-efficacy and social influence become less powerful. However, the study's limitations included the small data sample and high percentage of incomplete responses; this is because responding to survey questions was not required for each one, allowing participants to omit multiple responses; additionally, because there were so few questions, even a few unanswered questions resulted in the participant's exclusion. The sample only consists of younger German-speaking individuals; given that Germans are reported to prefer cash payments over those of other nationalities, future research should aim to gather a larger and more representative sample as well as conduct surveys in other nations to determine whether there are cultural differences. Nevertheless, the sample size is still large enough to allow for the simultaneous investigation of both novice and experienced users for the first time.

Not all threats are taken into consideration, even though this study included a variety of threats in its research model. A more thorough method that takes into account all dangers could yield more specific information about the risks that people are frightened of, which would prevent them from intending to adopt and continue. The operating system control variable had an effect on MP's intention to use and altered the degree of significance for one hypothesis. While the results remain unaltered, more research is required to determine the exact impact that user attributes and the operating system play in the uptake of MP. A longitudinal focus would allow testing the changing behaviour and also the changing perception of advantages or disadvantages of MP compared to alternative payment methods.

A study in Indonesia examined the “Motivation to Use M-Payment in Shopping Centre: A Qualitative Inquiry” (Efendi & Salim, 2020). The results of the study indicate that the participants are motivated to use M-payment because of convenience, sales promotion, convergence, and keeping up with the trend or technology. The sample consisted of students, entrepreneurs and employees between the ages of 20 and 24.

The results of a study in Korea published in a paper titled "A study on the factors affecting the usage and diffusion of Mobile Easy Payment Services" (E. Lee et al., 2020) demonstrated that via perceived utility and perceived risk, confidence, mobile self-efficacy, and relative advantage were beneficial in influencing the intention to use mobile easy payment services. It recommends more investigation into a few individual characteristics related to the adoption and diffusion of mobile easy payment services.

A global study was conducted and published in a paper titled Users as innovators in developing countries:(Van Der Boor et al., 2013) .The study came to the conclusion that emerging nations, rather than the "Northern" and "Southern" countries conventionally ascribed in the literature, play the role of trailblazers whose accumulated know-how leads to global adoption of innovation. It examined the case of mobile banking using a large, manually gathered data set and discovered trends that support the hypothesis that "South" may play a significant role in future digital-age developments. The following were the study's highlights:

85% of innovations in this industry came from developing countries.

50% of innovations were pioneered by users, 45% by producers and 5% jointly.

75% of non-OECD innovations diffused to OECD countries.

Platform openness and flexibility enables user innovation in developing countries.

Services developed by users diffused at more than double the rate of producer-innovation.

The academic article “Examining The Role Of Usability, Compatibility And Social Influence In Mobile Banking Adoption In Indonesia” (Sitorus et al., 2019) was among the first studies to combine usability, compatibility, and social influence in a mobile banking adoption study to conceptually investigate it. Partial least squares structural equation modelling was utilised to assess the proposed model using data from 319 genuine respondents. The findings support all of the assumptions and indicate that contentment, compatibility, perceived usefulness, perceived learnability, and social influence have a substantial

impact on people's intention to continue using mobile banking. Convenience sampling was employed in the study to gather empirical data, which limited how broadly the results could be applied. Additionally, the study only looks at a portion of the interaction perspective framework; further research should examine all of the framework's interaction types. Additionally, a comparison of the various sample characteristics and how they affect the intention to stick with mobile banking would help us understand how bank customers adopt new services.

A study was conducted and presented in an article "Drivers of Mobile Payment Acceptance in China: An Empirical Investigation". (W.-C. Chen et al., 2019). The results demonstrated that adoption intention was positively impacted by perceived transaction convenience, compatibility, relative advantage, government support, additional value, absorptive capacity, affinity, and PIIT (personal innovation in IT). In contrast, social influence had no discernible effect on adoption intention, and perceived risk had a negative effect. Furthermore, absorptive capacity, perceived transaction convenience, and added value are the top three elements influencing adoption intentions. The results of this study indicate that social influence has little to no effect on Chinese users' adoption of mobile payments, despite statistical results supporting generalizability when the sample size is greater than 100. Larger samples also guard against many biases and strengthen the study's explanatory power. Since this result contradicts the findings of other studies, more research is recommended to determine whether social influence has a significant impact on users in various demographic variables (e.g., gender, education, usage, experience, etc.) when it comes to adopting mobile payment services. While the age distribution of users in the questionnaire is fairly evenly distributed among users aged 16–25, 26–35, and 36–45, it should be noted that China is home to a sizable elderly population. Consequently, it was recommended that more questionnaires be filled out by older respondents to make these research findings more thorough and to gain a deeper understanding of the impact that mobile payment-related elements have on Chinese consumers. China is a huge country with a wide disparity between its urban and rural parts, therefore the

findings don't adequately reflect the state of customers there. Thus, it is recommended that interviewees from a wider range of areas be included in order to obtain a more thorough understanding of the state of mobile payment usage in China as well as the variations in the factors pertaining to the use of mobile payment in various Chinese regions (such as urban and rural areas). In the future, we also intend to investigate the research model's suitability for various user group categories. As per an eMarketer analysis, 81.4 percent of smart phone users utilise mobile payment services (use and non-use of mobile payment services). We aim to explore our research methodology across various user categories and compare users' inclination towards using mobile payment services.

The academic article on “A Framework of Mobile Banking Adoption in India” (A. Kumar et al., 2020) demonstrated that all relevant behavioural factors, including subjective norms, personal innovativeness, trust, and self-efficacy, along with the TAM constructs of perceived usefulness and perceived ease of use, have had a statistically significant positive impact on customers' intention to adopt mobile banking. Though the study uses a convenience sample, which may not be a particularly effective way to represent the target population, and the sample size is relatively small, it does not examine the impact of moderating variables like technology-related risk, availability of alternative modes, compatibility, quality of the mobile interface, and demographic variables, which might predict usage more accurately. As a result, the study's findings should be interpreted cautiously when making generalisations. The demographic variables, such as gender, age, and occupation, have not been taken into consideration in the theoretical model and structural model. This study suggests a number of areas to investigate in the future. The study's findings can be tested and validated for other developing nations with comparable social and demographic structures in order to better understand how customers adopt mobile banking. It is also possible to reexamine and practically validate the theoretical model in future study. Future conceptual and empirical research may also take into account a few additional elements, such as the calibre of mobile

services, technological preparedness, compatibility, and hazards associated with technology, and examine how they relate to the uptake of mobile banking.

Another article pertaining to a study in Taiwan on “Factors in the Ecosystem of Mobile Payment Affecting its Use: From the Customers' Perspective” (Yeh, 2020) demonstrated that all relevant behavioural factors, including subjective norms, personal innovativeness, trust, and self-efficacy, along with the TAM constructs of perceived usefulness and perceived ease of use, have had a statistically significant positive impact on customers' intention to adopt mobile banking. Whereas the study's sample size is small and it uses a convenience sample, which may not be the best method to represent the target population; it does not look at the effects of moderating factors like technology-related risk, the availability of alternate modes, compatibility, the quality of the mobile interface, and demographic variables that may be able to predict usage more accurately. Therefore, generalisations based on the study's findings should be made with caution. The theoretical model and structural model do not take into account the demographic characteristics, such as gender, age, and occupation. This paper makes several recommendations for future research directions. The study's conclusions can be verified and evaluated for other developing countries with similar social and demographic structures to gain more insight into the ways in which users adopt mobile banking. Future research may also reexamine and empirically validate the theoretical model. Future conceptual and empirical studies may also consider a few other factors and investigate how they relate to the adoption of mobile banking, including the quality of mobile services, technological readiness, compatibility, and risks connected with technology.

The article on Analysis of the Development Process of Payment Methods and Mobile Payment Technology Diffusion Trend in China (Y. Li & Li, 2020) , After studying the pattern of mobile payment product dissemination, a payment product diffusion model based on the Bass model that takes recurring transactions into account was created. The paper examined mobile payment promotion strategies among various payment institutions by comparing traditional products, like debit and credit cards, with mobile payment products, like mobile banking. Additionally, the paper compared mobile payment

products issued by large state-owned banks with joint-stock banks. The internal components of the inter-personal reputation effect were shown to be substantially stronger than the exterior effects of the mass media (advertising, promotion, etc). The aforementioned findings demonstrated that when consumers use payment products, they are aware of internal social influence mechanisms, particularly those that have an impact on cross-population as well as interpersonal reputation effects within their groups.

A study in Nigeria published in the article “Going Cashless: Adoption Of Mobile Banking In Nigeria” (Odumeru, 2013), Employing age and educational background as a framework, Rogers' Diffusion of Innovation theory was used to explore the factors influencing the adoption of mobile banking in Nigeria. Every one of these factors was found to have an impact on the uptake of mobile banking.

A paper presented as “Case Study of the Critical Early Adopters' Role in the Rapid Adoption of Mobile Money Banking in Kenya” (Ngugi et al., 2010) determined the contributing elements and noted that the majority of Kenyans now have access to mobile phones thanks to the mobile revolution and the country's sizable unbanked population, which is clamouring for financial services. M-PESA made the most of this situation by successfully employing early adopters to address the remaining population. With a number of value-added services just ready to be used, M-PESA has completely changed how financial services are accessible in Kenya and has a bright future ahead of it. The M-PESA case demonstrates that, by leveraging early adopters to promote technology at no cost, it is now feasible to profitably expand financial services to the underprivileged, unbanked segments at the base of the social pyramid. But, as previously said and demonstrated here, this necessitates that the technology be treated as an addition to the current social structure and tailored to a particular social/practical need and market niche. Limitations: This sample adhered to Safaricom's goal of focusing on the youth and tech-savvy population to highlight the obstacles and future directions of M-PESA. This strategy's drawback is that the population might not be perfectly representative of all Kenyans. The purpose of the questions was to record behaviour in both urban

and rural settings. Subsequent research endeavours may include broadening the demographic sample in order to gather feedback on relevant question items from rural respondents. Applying the same approach to every newly introduced technology would not be feasible, as some cultural norms in African society—where knowledge is regarded as correlated with age—may make it difficult for early adopters, who are typically younger than the early majority, to employ new technologies.

The academic article “Digital Wallet Adoption: A Literature Review” (Jain & Singhal, 2019) investigated and identified several influences on consumer adoption behaviour toward digital banking. They provided interesting insights into the diffusion pattern of digital banking. It was observed that among the most frequently investigated regions were India, Southeast Asia (Singapore and Malaysia), East Asia (Taiwan, China and Korea), Islamic counties (Iran, Iraq) and Africa (Zimbabwe, South Africa); a few studies applied to Europe (Finland, Turkey, Germany). From the year 2009, the flow of empirical & conceptual research has increased tremendously in the field of M-Banking services. However, most of the researchers in this literature review depend upon TAM and its modification to explain the usage of M-Banking technology. Furthermore, the next highest used model is IDT (Innovation diffusion technology). Different models, theories and frameworks are used to study different attributes, constructs and various factors that promote the adoption of digital banking and risk associated with its usage. In terms of the Literature Review, various authors have found several independent variables like technology usage which positively influence the adopters but has negative impact on non- adopters. Apart from these variable social & cultural factors, demographic features do play a significant role in adoption and non-adoption of technology."

The academic article “Understanding and Predicting Behavioural Intention to Adopt Mobile Banking” (Hong, 2019) finds that all personal aspects have favourable associations with the propensity to use mobile banking services, according to its study on Korea. However, it was discovered that while subjective norm is not substantially correlated with the intention to utilise

mobile banking services, observed herding behaviour has a considerably favourable link with that intention among the social influence components. The study did not investigate if cultural factors could influence a person's behavioural intention to use mobile banking. The study does not address adoption behaviour, nor has it measured how people really use mobile banking. Age's impact has not been quantified.

The article "Understanding the determinants of mobile banking" (F. Malaquias et al., 2018) , highlighted that a quantitative approach was used to observe that there has been a growth in the use of mobile banking during the time, along with an increase in the perception of trust, convenience of use, social influence, and task characteristics connected to mobile banking. The findings showed that while some decisive factors may vary over time, mobile banking usage tends to rise (in the case of the emerging economy considered in this study: Brazil. The study noted that confidence increased with time. Consequently, in order to preserve or maximize customer perceptions of the reliability of mobile banking, banks must continue to run their advertisements and maintain high security standards. The impossibility of using a matching process because the responses were gathered anonymously through questionnaires is one of the research's drawbacks. Subsequent investigations may track the opinions of a cohort of participants over an extended period, and the outcomes may be juxtaposed with the findings of current study. Using undergraduate students' comments is one more restriction. They comprise a reasonable percentage of both present and prospective mobile banking customers. Therefore, a longitudinal approach with more diverse samples is recommended for future research.

The results in the academic article "An investigation of users' continuance intention towards mobile banking in China"(Yuan et al., 2014b) show that satisfaction is the important predictor of users' continuance intention. Also, Perceived usefulness, perceived ease of use, perceived task, technology fit, and perceived risk as key beliefs in continued usage. satisfaction, in turn, is determined by confirmation, perceived usefulness, and perceived risk. Perceived usefulness is affected by confirmation, perceived ease of use, and perceived task-technology fit. However, the direct effect of perceived ease of

use to continuance intention is not significant. The results also show that gender significantly moderates the effect of perceived risk to continuance intention. This research was conducted in the eastern provinces of China. Future research across different regions or countries may be considered. Future research may explore the possible effects of other factors (e.g. familiarity, intimacy) to users' continuance intention of m-banking services; the research was conducted using a short-term snapshot of users' behaviour. Users' behaviour is dynamic. highlighted that a quantitative approach was used to observe that there has been a growth in the use of mobile banking during the time, along with an increase in the perception of trust, convenience of use, social influence, and task characteristics connected to mobile banking. The findings showed that while some decisive factors may vary over time, mobile banking usage tends to rise (in the case of the emerging economy considered in this study: Brazil. The study noted that confidence increased with time. Consequently, in order to preserve or maximize customer perceptions of the safety of mobile banking, banks must continue to run their advertisements and maintain high security standards. The impossibility of using a matching process because the responses were gathered anonymously through questionnaires is one of the research's drawbacks. Subsequent investigations may track the opinions of a cohort of participants over an extended period, and the outcomes may be juxtaposed with the findings of current study. Using undergraduate students' comments is one more restriction. They comprise a reasonable percentage of both present and prospective mobile banking customers. Therefore, a longitudinal approach with more diverse samples is recommended for future research. A longitudinal study could be used in future research to evaluate and analyse user behaviours across time, offering a more thorough understanding of users' continued usage.

The conference paper on "What Promotes Customers' Trust in The Mobile Payment Platform: An Empirical Study Of Alipay In China" in 2018 (Shao & Zhang, 2018) in its analysis, suggests that security is the most significant antecedent of trust, followed by platform reputation. In addition, mobility and customization characteristics are also beneficial to promote customers' trust in the mobile payment platform. While compatibility is directly associated with

customers' continuance intention without being mediated by trust. Survey data of this study is based on Alipay users, future research can be conducted in other mobile payment platforms, such as WeChat platform, to further examine the generalization of the research model; future research can conduct a longitudinal study and collect data at different time points, to better observe users' behavioural change across time ; Subsequent research can also incorporate customers' gender, age, experience and cultural values as moderators in the research model, in order to examine if there exists behavioural differences in different user group based on its study, infers that security is the most important precondition for trust, with platform reputation coming in second. Furthermore, features like mobility and customisation help to build users' confidence in the mobile payment platform. However, compatibility has a direct, non-mediated relationship with customers' intentions to stick with you. This study's survey data is based on Alipay users; future research can be done in other mobile payment platforms, like the WeChat platform, to further examine the generalisation of the research model; future research could even collect data at various time points in a longitudinal study to better observe users' changing behaviour over time; and further research can include customers' gender, age, experience, and cultural values as moderators in the research model to investigate whether different user groups exhibit different behavioural patterns.

The academic article Adoption And Diffusion Of In-Store Mobile Payment: Lessons From China "Consumer acceptance of mobile payment across time (WeChat platform)"(J. Wu et al., 2017) As per its research, consumers' intentions to take risk are influenced by their perceptions of usefulness, risk, and happiness. Feelings of positivity have a strong inverse relationship with perceived danger and a direct correlation with perceived utility. Perceived usefulness also significantly reduces users' perceived danger. Positive emotion and perceived risk are found to have significant positive and negative effects on acceptance intention during the stage of market introduction, as opposed to market growth, according to multigroup research. Instead, compared to the market introduction stage, the influence of positive usefulness on acceptance intention is much greater during the market expansion stage.

The thesis on Adoption And Diffusion Of In-Store Mobile Payment: Lessons From China (Nguyen & Lu, 2018) studied the strategies adopted by mobile payment providers to spread awareness of mobile payments and the adoption plans of retailers. The conditions of the Chinese market informed the solutions that Alipay and WeChat Pay offered, and the growth and development of the mobile payment providers in China gave them some advantages, like a sizable user base. Additionally, as part of their multi-sided market strategy that made use of cross-side network effect, Alipay and WeChat Pay depended on their loyalty programmes to spread their mobile payment methods among retailers. From the standpoint of the retailers, we have also found that a number of Chinese merchants were open to adopt WeChat Pay and Alipay due to client requests, low costs, early confidence, and potential benefits. The results provide valuable insights on the popularity of mobile payments in the Chinese market. More in-depth research on merchant adoption and diffusion strategies, on the other hand, could be conducted. Additionally, researchers should consider the possibility of applying China's mobile payment providers' strategies to other nations, like Sweden, Norway, and others, as well as other platform strategies and more influential factors; impact of Policies and culture differences are some variables that need to be investigated when comparing different countries.

The article "A study On Consumers' Adoption Intention For Digital Wallets In India" (Chakraborty & Mitra, 2018) concluded that relevant constructs included perceived utility, perceived ease of use, social impact, perceived self-efficacy, individual playfulness and personal inventiveness, perceived value, and attractiveness of alternatives. A number of constructs that were absent from the initial UTAUT model were found to be important in determining how consumers feel about e-wallet services. These constructs include perceived self-efficacy, individual playfulness and personal inventiveness, perceived value, and the attractiveness of alternatives. The goal of the research was to develop a new model.

The research article "An Empirical Assessment Of Adoption And Innovation Of The Portable Banking Technology In Kenya" (E. M. A. Ahmed, 2021) discovered that adoption is positively impacted by relative advantage,

compatibility, trialability, and observability. It was discovered that trialability and complexity had less of an impact on acceptance. More precisely, compatibility is the most important factor influencing the adoption of portable bank technology, according to the regression model. There was no discernible effect of complexity on the uptake of mobile banking technologies. The research has yielded valuable insights about Kenya's adoption of portable bank technologies. The study suggested that comparative studies on both homogeneous and heterogeneous subjects be conducted in the future, with an emphasis on larger variables. settings to gauge the net effect of technical attributes on technology adoption.

The research article "Impact Of Diffusion Of Innovation On Cashless Transaction Adoption And Continued Usage In Taraba State"(Galadima Talatu Obed, 2020) , demonstrated that adopting and maintaining cashless transactions is influenced by users' understanding of and recognition of technological difficulties. As covered in this article, the TAM components are thought to be the primary requirement needed to ascertain a behavioural intention to adopt cashless transactions. Other moderators, like disposition, also made a comparable contribution to the acceptance of cashless transactions. This suggests that those things need to be taken into consideration in order to successfully encourage users to use and maintain using cashless transactions. Additionally, individuals' attitudes toward implementing and continuing to use cashless transactions were significantly influenced by awareness to varying degrees. IDT (Diffusion of Innovation) aids in increasing user awareness of the significance of cashless transactions because both media impact and social influence have shown to be beneficial elements in the adoption of cashless transactions. The findings of this study confirm that integrating TAM with IDT to explain individual behaviour is reasonable. This lends support to the links that have been introduced to show how IDT affects attitude and behavioural intention in the adoption and ongoing use of cashless transactions.

The Ph.D. thesis on "Examining the Adoption and Use of Mobile Data Services: A Consumer Behaviour Analysis (Tobbin, 2013) presents the integrated mobile money adoption model (iMoMAM), which offers insight into how customers

make decisions about adopting and using mobile money services based on social influences. It also offers a fresh viewpoint on the factors that influence end users' decisions to appropriate technology. It was noted that the public meaning of technology, the end-private user's meaning, and social influence all influence how an end-user appropriates technology. (iMoMAM is created by combining many models.)

The academic article *Effect Of Perceived Risks On The Adoption Of Cashless Transactions In Jalingo Metropolis As Perceived By Bank Workers International* (Obed, 2020) in its study on Nigeria came to the conclusion that users' behaviour toward adopting and continuing to use cashless transactions is negatively impacted by perceived risks, including financial, performance, and security threats. Financial risk, security risk, and performance risk for both the person and the general public were taken into consideration when conducting the study. It was neither a hybrid model nor a diffusion of innovation model. The criteria that were looked at went beyond TAM and included aspects of diffusion of innovation; in actuality, the model has not been mentioned.

A Conference Paper “Consumers' Perceived Interactivity Of Mobile Banking Usage: A Conceptual Review” (Krishnan et al., 2015) combined IDT and TAM. The results of this thorough literature analysis suggested that mobile banking service providers and app developers should recognise the significance of comprehending and knowing customer behaviour. It was advised that these mobile banking service providers and developers of mobile banking apps should improve their market share by referring directly to the research's findings. The idea of tailoring services to individual customers could be used to accomplish this in phases. In addition, marketing strategies can be developed to fit the attitudes and behavioural intents of the target audience. It was clearly demonstrated that, in the case of mobile payments and banking, a variety of external factors, rather than just TAM elements, impact the ongoing usage or acceptance. The validity of the research methods and hypotheses were established.

The research article “Banking access for the poor: Adoption and strategies in rural areas of Bangladesh” (Rahman et al., 2016) observed that the adoption of mobile banking in Bangladesh's rural areas is statistically significantly influenced by the user interface (UI), perceived ease of use (PEU), trust, and perceived usefulness (PU). However, the adoption of mobile banking was significantly hampered by the user interface. The language used in mobile banking could be the likely cause. Many consumers in rural areas found the English language used in mobile banking confusing. They felt that using the local language and gaining more knowledge over time would aid users in overcoming anxiety connected to user interfaces. The user interface is one of the new constructions that are used with the TAM model.

The research article "An Empirical Assessment Of Adoption And Innovation Of The Portable Banking Technology In Kenya".(E. M. A. Ahmed, 2021) investigated the appropriateness of innovation diffusion in understanding and explaining the adoption rate and acceptability of portable bank technology in Kenya through the assessment of the factors that influence the adoption of portable banking technology. The study found that relative advantage, compatibility, Trialability, and observability positively impact adoption. Trialability and complexity were found to have a lesser significant effect on Adoption. Complexity hurts adoption. Complexity hurts adoption. More specifically, the regression model revealed that compatibility is the most significant determinant of adopting portable bank technology Trialability has a significant positive impact on adoption. Observability has a high explanatory value Relative advantage has returned a positive explanatory coefficient Finally, Complexity had no significant impact on the adoption of portable banking technology. evaluated the factors influencing the adoption of portable banking technology in order to determine whether innovation diffusion is a suitable explanation for the acceptability and adoption rate of this technology in Kenya. According to the study, adoption is positively impacted by relative advantage, compatibility, trialability, and observability. It was discovered that trialability and complexity had less of an impact on adoption. Adoption is hampered by complexity. More precisely, compatibility is the most important factor

influencing the adoption of portable bank technology, according to the regression model. Adoption is significantly boosted by trialability. With a strong explanatory value, observability an explanatory coefficient that is positive has been found for relative advantage. Finally, the adoption of portable banking technology was not significantly impacted by complexity in Kenya.

The research article "Determinants Affect Mobile Wallet Continuous Usage In Covid 19 Pandemic: Evidence From Vietnam" (Ly et al., 2022) noted that, consistent with research from developing Asian countries like Malaysia and India, effort expectancy (compatibility) is not a determining factor in the adoption of mobile wallets during the lockout. (Revathy & Balaji, 2020); (Saraswati, Lestari, & Haryani, 2021). Similarly, although having a favourable impact on behavioural intention, social impacts do not satisfy statistical significance requirements (Observability)

The research article "Influencing Factors on Mobile Wallet Adoption in the Philippines: Generation X's Behavioural Intention to Use GCash Services" (Cacas et al., 2022) reveals that generation X's behavioural intention to use GCash is highly influenced by four factors: perceived risk, convenience of usage, rebates, and social influence. Generation X is not positively impacted by perceived risk, but they are positively impacted by simplicity of use, rebates, and social influence when it comes to their behavioural intention to use GCash services. GCash may take social impact into account when implementing their marketing techniques in order to successfully persuade the Filipino generation Xers to utilise their services, as it is the most critical factor determining their behavioural intention (Complexity RA, Compatibility and Observability). There is potential to use both quantitative and qualitative methodologies to investigate the behaviour of generation X using the four (4) impacting elements. This will enable it to obtain more information in order to better understand the behaviour of the generation. Since the study only focused on four particular criteria, other aspects, such perceived usefulness in their studies, may help understand their behavioural intention to utilise GCash's services. Since the study only looked at generation X living in Metro Manila, future researchers can also examine the behavioural intents of this generation in other parts of the

nation. With this, they may determine whether generation X members from rural areas have different considerations when it comes to embracing mobile wallets.

In the article “A Framework of Mobile Banking Adoption in India” (A. Kumar et al., 2020) examined the significant factors that led to Indian consumers' intention to use mobile banking, and by adding two new constructs to the classic technology acceptance model (TAM), a comprehensive framework was proposed. Four customer-oriented constructs were measured in order to achieve this. The findings show that customers' intentions to adopt mobile banking have been positively impacted statistically by all relevant behavioural factors, including subjective norms, personal innovativeness, trust, and self-efficacy, in addition to the TAM constructs of perceived usefulness and perceived ease of use. The study offers an empirical basis that can assist mobile and banking services providers in developing their marketing strategies. The impact of moderating variables that could more correctly predict usage, such as demographics, compatibility, accessibility of alternate modes, risk connected with technology, and the quality of the mobile interface, was not investigated in this study; The theoretical model and structural model do not take into account demographic variables like gender, age, and occupation; also, the study uses a convenience sample, which may not be a very good way to represent the target population. Since the sample size is limited, care must be taken when extrapolating the study's findings to a larger population. Further research can be conducted to re-examine and validate the theoretical model empirically. Future conceptual and empirical studies may also take into account a few other factors, such as mobile service quality, technological readiness, compatibility, risks of technology, and inspect their association with mobile banking adoption. The results of this study can also be tested and verified for other developing countries having a similar social and demographic structure as that of India, e.g., Indonesia, Malaysia, Sri Lanka, Bangladesh, Pakistan, Brazil, China, etc., as well as for improved understanding of users' adoption behaviour when it comes to mobile banking adoption.

This paper “Determinants Of Behavioural Intention On E-Wallet Usage: An Empirical Examination In Amid Of Covid-19 Lockdown Period” (Revathy &

College, 2020) The objective of the empirical study was to examine the important determinants of behavioural intention regarding the use of e-wallets during the COVID-19 lockdown. In order to obtain the opinions of e-wallet users in the study area, this study used an empirical research design in conjunction with an online survey approach. The findings show that while effort expectancy has no discernible effect on e-wallet usage, perceived security, social influence, and performance expectancy are positive and significant predictors of e-wallet usage. The major data gathering strategy for the study was an online survey. Therefore, the limitations of an online survey will also apply to this empirical study. The nonprobability convenience sampling method was used to select respondents, and only Wallet users in Chennai, Tamil Nadu, participated in the primary survey. This is because it is not appropriate to generalise the survey's findings to the entire state or nation. As a result, the disadvantages of non-probability sampling also apply to this study because primary data was only gathered during the COVID-19 lockdown. In order to further understand Indian customers' behavioural intentions towards e-wallets, this study can be expanded to additional cities, states, and countries. As a result, pre- and post-lockdown perceptions may differ from the current study findings. In order to investigate demographic variations in the intention to use an e-wallet, a comparison study across various gender, age, and income groups may also be taken into consideration. In the near future, a comparison analysis of usage intentions before and after the COVID-19 lockdown period may be investigated to yield more insightful data for the development of e-wallets. It is possible to compare the perceptions of e-wallet users in the public and private sectors to investigate variations in usage patterns among e-wallet users in India.

2.7 LEARNINGS AND RESEARCH GAPS IDENTIFIED

The literature review that was undertaken was during a period of 2 decades and encompasses the digital banking services including ATMs, online banking and other service. For better analysis, the literature review is divided into two parts.

- (i) The period before launch of UPI i.e. 2016. With the availability of only IMPS service, the mobile payments could be made only as a remittance service and not for retail payments.
- (ii) The period after launch of UPI when affordable mobile data and the payment apps came into full effect along with demonetisation and the mobile payments via apps rolled out in full scale.

2.7.1 LITERATURE REVIEW PRE 2016 INCLUDING 2016.

In one of the earliest studies, the Ph.D. Thesis on E-Banking practices and Customer Satisfaction in Thanjavur district of Tamil Nadu: an empirical study (Dhandayuhapani, 2012) studied e-banking practises and consumer satisfaction, concluding that public and private sector banks provide good levels of security for online banking transactions. Regarding e-banking speed, content, and design, the majority of respondents at banks operating in both the public and private sectors expressed dissatisfaction. Because of this, the study indicates that there is a great deal of scope for improvement in the speed, design, and usability of online banking. Customers of banks in the private sector were also more satisfied with ATMs, Online and mobile banking. The research comprised only commercial banks located in the Thanjavur area. The basis for the study was the consumer opinion survey. However, depending on the situation and event, the point of view may vary. Because the study focused solely on the Thanjavur district of Tamil Nadu, the findings cannot be generalised to a wider geographic area. Other jurisdictions and additional digital banking products, such as mobile banking, could be included in the same analysis. Before mobile banking was introduced to the nation, this study was conducted in the context of digital banking.

In the Ph.D. Thesis on Study on banking services through e-channels (Goyal, 2009) , It was found that, when considering variables like gender, age groups, occupations, economic status, and geographic origins, there were no discernible variations in the opinions on the general quality of banking services. There is a perceived difference in the quality of services offered by public and private

sector banks; the latter is thought to offer much superior quality. The same study might incorporate additional digital banking products, including mobile banking, and different jurisdictions. Prior to the nation's adoption of mobile banking, this survey was conducted in the context of digital banking. differences in the quality of services offered by any bank. The current study focused only on Indian banks operating in Punjab; however, it might be expanded to cover all of India. To find out if there are any significant variations between the banking clients in other regions, the study might be enlarged. The probe had looked into eight banks under its purview. The research can incorporate all operational Punjabi banks. In light of the country's changing digital environment, a re-examination of the findings is required.

In another study undertaken in the Ph.D. Thesis “Influence of technology in banking a customer centric study with special reference to Kerala “(Raju, 2014), The results showed that: 1. there were significant differences in the informational and transactional nature of all Self Service Banking Technology (SSBT) services, including ATM, Internet Banking, and Mobile Banking; 2. there were differences in the respondents' extent of use of SSBT services across categories based on age, sector, region, and computer, internet, banking, ATM, and IB experience; 3. motivational factors varied across the demographic profile; and . the bank's awareness policies had an impact on the use of SSBT. 2. Among respondents, demonstrability and trialability appeared to have the least of an impact on the adoption of SSBT. This suggests that if the bank had taken efforts to offer customer awareness or demonstrations to give consumers the confidence to adopt SSBT, SSBT adoption would have increased. 3. Computer literacy affects how often SSBT services are used. 4. It was observed that the Technology Acceptance Model (TAM), whose two main components are (1) perceived usefulness (PU) and (2) perceived ease of use (PEOU), had a significant impact on Kerala bank customers' adoption of SSBT. Constraints: The research is limited to Kerala retail banking clients. Corporate Banking respondents are excluded because banking operations rely on the policies and practises of the relevant business entity. The samples used in this study came from clients who used at least two SSBT services. This study has intentionally

ignored the perspectives and issues of individuals who only utilise one SSBT service. 3) Only respondents from Public Sector Banks (PSB), Old Private Sector Banks (OPB), and New Generation Banks (NGB) are taken into account for this study; respondents from international banks, whose banking practises and cultures differ, have been excluded. Given that the research was done before 2016, there is room for a more thorough investigation of the problems related to more recent digital banking services like UPI (introduction of UPI platform). Nonetheless, significant findings about the use of technology by Keralan consumers have been studied.

The study in the Ph.D. Thesis “Adoption and usage of innovative techniques: a study on mobile banking in Coimbatore city” (Begum, 2015) concluded that younger age groups with at least a higher secondary education level were the ones most likely to use mobile banking. The model included "Trust" in addition to the elements of TAM, TRA, and IDT. According to the research, although consumers thought mobile banking was simple to use, they were hoping for more "security" and better customer care policies. It was discovered that the barrier preventing mobile banking uptake was perceived risk. Attitude, perceived utility, and perceived ease of use all strongly influenced the desire to utilise mobile banking. Limitations: The respondents to the current study were given the interview schedule, which was used to collect the data. The study is also subject to the constraints of primary data collecting. 2. The researcher was able to convince the respondents to provide the necessary data after much persuasion. 3. Because the study was "micro" in scope and only 400 sample units provided replies, its conclusions cannot be broadly applied. Research deficit and potential areas of investigation: It also implied that banks should focus on enhancing security and safety in order to win over customers' trust; to examine the financial viability of mobile banking technology; to look at factors that promote or hinder the use of different mobile phone services; and to research the challenges that Indian consumers have while adopting and using mobile banking services.

The study in the article “Factors Affecting Mobile Banking Adoption Behaviour in India published in Journal of Internet Banking and Commerce) (Shankar,

2016) implies that if banks can meet customer expectations for services, customers will use mobile banking. Although it believed that banks offered their customers a high degree of security, it also believed that speed and ease of use were disincentives. The study looked at some empirical data regarding Indian consumers' intentions to adopt m-banking. It was discovered that consumer adoption intentions of mobile banking in India are significantly influenced by factors such as awareness, usefulness, ease of use, compatibility, self-efficacy, security and privacy risk, social influence, and financial cost. Usefulness is the most important component, while social influence has the least effect on the rate of customer acceptance. Based on a review of pertinent literature, a proposed research framework was developed. It was discovered that consumer adoption intentions of mobile banking in India are significantly influenced by factors such as awareness, usefulness, ease of use, compatibility, self-efficacy, security and privacy risk, social influence, and financial cost. Usefulness is the most important component, while social influence has the least effect on the rate of customer acceptance. In place of m-banking adoption, satisfaction has been employed as the/ dependent variable in the analysis. Limitations and potential areas for further study: Demographic factors including age, wealth, experience, and education might be used as moderating variables in future to the exploration of m-banking.

Even if the study's model and constructs are important, it should be noted that the paper was published in February 2016, which is before the NPCI launched the UPI platform as a payment channel. It is assumed that the analysis is predicated on the use of mobile banking as a remittance channel rather than a payment method, which emerged in 2016 and spread subsequently. This study offers significant insights and conclusions. The same may be applied to analyse current factors impacting the diffusion of mobile payments. 5. Academic article India(Mumbai, Thane, Lucknow, New Delhi, and Aligarh)

In study in the Ph.D. Thesis on “Study on Customers Perception towards Mobile Banking Services with reference to Namakkal District, Tamil Nadu, India”

(Senthilkumar, 2016) finds that even while mobile banking services have advanced, users still struggle to stay up to date with the constant updates in technology and have a sense of unease when using these services. Frequent training and awareness campaigns have been advised. Limitations: Customers of a few banks in Tamil Nadu's Namakkal District serve as the study's base. Respondents' perceptions were limited to mobile banking services. The opinion of the customers was not considered positive. However, there was limited access to high-speed internet and affordable data previous to 2016, therefore the research is out of date and needs to be reviewed.

The academic Article "Analysing the Barriers towards Sustainable Financial Inclusion using Mobile Banking in Rural India published in Indian Journal of Science and Technology (Behl & Pal, 2016) concluded that users' and potential users' perceptions play a major role in determining how mobile banking technology is used. The findings indicate that perceptions of risk aversion, utility, and convenience of use all influence how widely mobile banking is used in rural areas. The results also suggest that greater use of mobile banking will lead to greater proficiency. Future research in this field is warranted as it could lead to a quick increase in usage and adoption, hence reducing their dependency on bank branches. The work integrated the ideas of diffusion theory with the innovation of the Technology Acceptance Model (TAM). The findings suggested that before improving the technology, banks and other financial organisations should investigate how much credibility risk is perceived when it comes to mobile banking. Peer pressure and user perception both contribute to the lifespan of mobile banking. The study is limited to the rural population of district of Ajmer; the study could be extended to other regions. The paper was published in May 2016, before the introduction of the UPI platform by NPCI and subject needs to be revisited.

The Ph.D. Thesis on Determinants on Adoption Behaviour of Indian Customers Towards Mobile Banking Services (*Vally Divya.Pdf*, n.d.). The study came to the conclusion that customers' adoption behaviour toward mobile banking is significantly and favourably influenced by their perceptions of perceived compatibility (PCOM), perceived service cost (PSC), reference group influence

(RGI), attitude, and perceived risk. The study was conducted in Delhi NCR, which serves a vast range of clients from all across India. However, it is possible that the findings cannot be broadly applied.

Research Vulnerability: The study was carried out using a reference period earlier than 2016. The same might be looked at with regard to mobile payments as there have been major changes made to the digital ecosystem and the introduction of mobile payments.

2.7.2 LITERATURE REVIEW POST 2016

The article “A Study on Digital Payments in India with Perspective of Consumer’s Adoption” published in International Journal on Pure and Applied Mathematics in 2018 (*Vally Divya.Pdf*, n.d.) show that the introduction of digital payment technology has enhanced the banking industry's performance and enabled the goal of a cashless nation. The number of people who are aware of using technology to its fullest potential is highlighted in the survey. It was recommended that banks implement efficient strategies to raise knowledge of the responsible use of technology and security. The samples that were based solely in Hyderabad City provided the primary data needed for the research objectives. Hyderabad is one of the most important cities in the nation and a commercial centre for south India, however the 183 samples that were chosen from the city do not provide a comprehensive picture of the nation's population. Although the study comes to the conclusion that digital payments could be a useful instrument for reaching a cashless economy, it is still necessary to investigate the causes that are driving this trend.

The Ph.D. Thesis E-BANKING: it’s impact on customers – an empirical study of selected banks in Goa(Albuquerque, 2018) revealed that gender creates a substantial influence on adoption of e-banking technologies with males considered to be having a higher adoption rate. Although (local) residential status did not show a significant association, yet there was ample of acceptance by those customers working abroad. Age also played an extensive role when speaking about the adoption of various types of e-banking technologies with the

younger age group most likely to adopt the same. Those from the public, private and banking sector showed positive sign of adoption of e-banking technologies. Limitations: 1. Study conducted in the state of Goa. 2. A paired qualitative study concerning the costing systems embraced by banks may have provided a different viewpoint from another angle and would enable to determine additional factors that are persuasive in adopting and influencing the sustainable use of various e-banking technologies. 3. Though there are varieties of e-banking technologies offered by commercial banks, the prominent technologies such as ATM Card, Mobile Banking, and Internet Banking technologies have only been considered for the purpose of the study.

Research Gap: As Mobile Banking was found to be favourable tool by both the bankers and the customers, the factors influencing the same for further diffusion needs to be examined.

The Ph.D. Thesis on Usage of Plastic Money and Virtual Wallet as Modes of Payments in and around Bengaluru City(Pratim, 2017) showed that utilisation was highest among those under thirty, and it decreased with age. Additionally, people accept mobile wallets significantly more readily, and they utilise and adopt them at higher rates. Limitations: Only credit card, debit card, and virtual wallet services are included in the study. Both users and non-users of these contemporary banking devices were taken into account in the study. Surveys were given to users and non-users at random. The study's geographic scope is limited to Bengaluru and its environs. The study determines the acceptability of virtual wallets, a component of mobile payments, and looks at the acceptability of payment channels other than cash. The results are applicable to the subject matter of this study and may also be investigated in other jurisdictions. It solely relates to mobile wallets, not mobile payments in general. Bangalore was the population under consideration. The study could be expanded to include other jurisdictions.

The Ph.D. Thesis “A Study on customer perception towards mobile banking in Punjab” (Vasudeva, 2017), demonstrates in its findings that there was awareness of the various mobile banking services available in India and that

these services are developing. Additionally, it was shown that consumers preferred mobile banking over online banking and were eager to do transactions via their phones. It was also discovered that m-banking was favoured above bank branches' convenient locations. These results indicate that m-banking services in India have a lot of promise. However, because of the disparity in the researcher's understanding, there can be restrictions on how their findings are interpreted. The convenience sampling technique was used in the current study because the data regarding m-banking users was not accessible in advance. Respondents who were present in the bank branches during the visits filled out the questionnaires. The same can be said for other jurisdictions, given that compatibility and relative advantage played a part in the adoption of self-service banking technology.

The academic article "Mobile Banking Adoption in a Developing Country like India published in *Drishtikon: A Management Journal* " (*Mobile_Banking_Adoption_in_a_Developing.Pdf Gandhi Sheroy.Pdf*, n.d.) concludes that the market for mobile banking is expected to be quite promising, despite it being a new concept. The concerns about security, however, also serve as a barrier. The rapid advancement of technology and the perceived use of this technology are the driving forces behind the adoption of mobile banking. The study found that the adoption of mobile payments using mobile banking as a substitute for carrying and using cash was positively impacted by the service cost, perceived compatibility, and Reference Group Influence. The sample size used in this study was insufficient to allow the findings to be broadly applied. Additionally, only respondents who used mobile banking services in India's largest cities were included in the survey. This might be investigated further in different jurisdictions and with different models.

The Ph.D. Thesis "A study of awareness and perspective of mobile banking - in Southern Rajasthan" (M. Khan, 2016) revealed two sets of results: a set from the bank employees and a set from the clients. The bank authorities felt that the new technology required specialised training in order to function, but they also felt that it increased profitability by decreasing transaction costs and increasing service efficiency for remote clients. Conventional banking was deemed to be

the optimal choice by the bank officials. The clients thought it was a trustworthy and practical tool for improving their money management. Employees in the banking industry have reported benefits from mobile banking. Positive customer perception was also discovered. A small sample of south Rajasthani consumers is used in this study. Factors such as bank types, account types, and computer literacy were not taken into account. The scope of this study is restricted to the degree of consumer cooperation and information. Employees in the banking industry have reported benefits from mobile banking. Positive customer perception is also present. It is also possible to reproduce the study in different jurisdictions.

The academic article on “A Framework of Mobile Banking Adoption in India” (A. Kumar et al., 2020) demonstrated that, together with the constructs of TAM, viz. perceived usefulness and perceived ease of use, as well as all other relevant behavioural factors, namely subjective norms, personal innovativeness, trust, and self-efficacy have exerted a statistically significant positive effect on the mobile banking adoption intention of customers. However, this study did not explore the impact of moderating variables such as risk associated with technology, availability of alternative modes, compatibility, quality of the mobile interface, and demographic variables, which might predict usage more accurately. The demographic variables such as gender, age, and occupation have not been considered in the theoretical model and structural model. The study used demonstrated that all relevant behavioural factors, including subjective norms, personal innovativeness, trust, and self-efficacy, along with the TAM constructs of perceived usefulness and perceived ease of use, have had a statistically significant positive impact on customers' intention to adopt mobile banking. The impact of moderating variables, which may more accurately predict usage, such as technological risk, the availability of alternate means, compatibility, the quality of the mobile interface, and demographic variables, were not examined in this study. The theoretical model and structural model do not take into account demographic characteristics like gender, age, and occupation. The convenience sample used in the study might not be a very good way to reflect the target population. Because the sample size was rather small,

conclusions about the study's findings must be made with caution. This study suggested a number of areas to explore in further research. The study's findings can be examined and validated in other emerging nations with comparable social and demographic compositions. demonstrated that all relevant behavioural factors, including subjective norms, personal innovativeness, trust, and self-efficacy, along with the TAM constructs of perceived usefulness and perceived ease of use, have had a statistically significant positive impact on customers' intention to adopt mobile banking. The impact of moderating variables, which may more accurately predict usage, such as technological risk, the availability of alternate means, compatibility, the quality of the mobile interface, and demographic variables, were not examined in this study. The theoretical model and structural model do not take into account demographic characteristics like gender, age, and occupation. The convenience sample used in the study might not be a very good way to reflect the target population. Because the sample size was rather small, conclusions about the study's findings must be made with caution. This study suggested a number of areas to explore in further research. The study's findings can be examined and validated in other emerging nations with comparable social and demographic compositions.

It is also possible to reexamine and practically validate the theoretical model in future study. Future conceptual and empirical research may also take into account a few more variables, such as the quality of mobile services, technological readiness, compatibility, and technology risks, and examine how these relate to the adoption of mobile banking.

The academic article “Digital Wallet Adoption: A Literature Review” (Jain & Singhal, 2019) examined and determined a number of factors influencing how consumers adopt digital banking. They offered intriguing new perspectives on the spread of online banking. It was noted that the most often studied regions were Africa (Zimbabwe, South Africa), Asia (East Asia, Taiwan, China, and Korea), Southeast Asia (Singapore and Malaysia), and Islamic countries (Iraq, Iran). A small number of studies were conducted in Europe (Finland, Turkey, Germany). The amount of empirical and conceptual research in the subject of mobile banking services has expanded dramatically since 2009. To explain the

use of M-Banking technology, the majority of researchers in this literature review, however, rely on TAM and its modification. Additionally, IDT is the next most popular model (Innovation diffusion technology). Many features, constructions, and other elements that encourage the adoption of digital banking and the risk associated with its use are studied using a variety of models, theories, and frameworks. According to the literature review, a number of independent variables, such as technology usage, have a beneficial effect on adopters but a negative effect on non-adopters. Aside from these shifting social and cultural variables, demographics do matter a lot when it comes to technology adoption or non-adoption."

This paper "Determinants Of Behavioural Intention On E-Wallet Usage: An Empirical Examination In Amid Of Covid-19 Lockdown Period" (Revathy & College, 2020). The objective of the empirical study was to examine the important determinants of behavioural intention regarding the use of e-wallets during the COVID-19 lockdown. In order to obtain the opinions of e-wallet users in the study area, this study used an empirical research design in conjunction with an online survey approach. The findings show that while effort expectancy has no discernible effect on e-wallet usage, perceived security, social influence, and performance expectancy are positive and significant predictors of e-wallet usage. The major data gathering strategy for the study was an online survey. Therefore, the online survey's limitations will also apply to this empirical investigation. It is not appropriate to extrapolate the results of the original poll to the entire state or nation, as only the wallet users of Chennai, Tamil Nadu, participated. To choose responders, nonprobability convenience sampling has been used. Therefore, the current study is subject to the same constraints as non-probability sampling. The primary data was only gathered during the COVID-19 shutdown. As a result, perceptions before and after lockdown may differ from those found in this study. The current study might also be expanded to additional states, towns, and nations in order to comprehend the behavioural intentions of Indian customers with regard to e-wallets. To investigate demographic variations in e-wallet usage intention, a comparison study across various gender, age, and income groups may be carried out. In the

near future, a comparison analysis of usage intentions before and after the COVID-19 lockdown period may be investigated to yield more insightful data for the development of e-wallets. It is possible to compare the perceptions of e-wallet users in the public and private sectors to investigate variations in usage patterns among e-wallet users in India.

The article "Exploring the determinants of adoption of Unified Payment Interface (UPI) in India: A study based on diffusion of innovation theory" (Fahad & Shahid, 2022) observed that relative advantages, complexity, and observability have a significant positive association with adoption and intention to use UPI, while Compatibility and trialability have no significant association with intention to use UPI. The intention to use and satisfaction were found to be positively associated with the intention to recommend. This study has provided new knowledge on aspects influencing the participant's intention to adopt, use and recommend UPI in India."

2.8 LEARNINGS & RESEARCH GAP IDENTIFIED

From the various literature perused as mentioned above, the following learnings have emerged. The first is that there is a definite shift towards digital payments in India. Further the diffusion is evidenced in payment behaviour. Various studies have concluded that the digital payment modes are beneficial to the economy.

The focus of most of the literature was on identifying the factors impeding the adoption. This is relevant in the context that Mobile Banking Technology is only a decade old in India and a little older in the rest of the world. However, the studies in small pockets have indicated that acceptability is happening which signifies success in the diffusion process. Drawing on the diverse body of material reviewed as previously indicated, the ensuing insights have surfaced. The first is that digital payments are clearly becoming more popular in India. Payment behaviour provides more proof of the diffusion. Numerous studies have found that the economy benefits from digital payment methods.

The literature focussed on figuring out what was preventing adoption. This is pertinent given that mobile banking technology is relatively new in the rest of the globe and barely ten years old in India. Still, small-scale investigations have shown that acceptability is occurring, indicating that the diffusion process is succeeding. The closest in the context of this research is The Ph.D. Thesis on Adoption Behaviour of Indian Customers Towards Mobile Banking Services (Verma & Nehra, 2016) It was determined by the study that customers' adoption behaviour towards mobile banking is significantly and favourably influenced by their perceptions of perceived compatibility (PCOM), perceived service cost (PSC), reference group influence (RGI), attitude, and perceived risk. Perceived usefulness and perceived ease of use are important criteria that impact the adoption of mobile banking, according to the study, along with observability and RA. The study was conducted in Delhi NCR, which serves a vast range of clients from all across India. However, it is possible that the findings cannot be broadly applied.

Research gap identified: This research was conducted prior to the start of the UPI platform, which allowed for seamless mobile payments in the true sense, this report was published in 2016. The research study concentrated on the NEFT/IMPS-based banking technology that was in use prior to 2016 and required entering the beneficiary's account data, i.e. using mobile banking.

The emphasis was not on mobile payments, or "on the go" payments, which were non-existent at the time. This research has been suggested to fill the void after the UPI platform in 2016 brought about a noticeable shift in the payment's environment.

CHAPTER III

RESEARCH METHODOLOGY

3.1 OVERVIEW

This chapter constitutes the methodological foundation of the research study. It meticulously details the systematic approach employed to examine various aspects of the research topic. The selection of the topic is deeply embedded in its significance within the chosen context.

The primary aim of this research is to investigate the complex factors related to the research topic, including the problem statement, objectives, hypotheses, and the significance of the study. To achieve this, a sophisticated and multi-dimensional research methodology has been meticulously devised. This methodology encompasses critical components such as research questions, objectives, variables, hypotheses, data collection methods, and advanced statistical analysis techniques. Adopting a deductive approach, this research tests existing theories and concepts to assess their applicability to the research topic. Hypotheses are formulated based on established theories and subjected to rigorous empirical analysis. Additionally, the study embraces a positivist approach, emphasizing objective measurements and cause-and-effect relationships.

A cross-sectional research design has been selected to capture a snapshot of data at a specific point in time, reflecting the dynamic nature of the research subject. This design facilitates a comprehensive exploration of the factors under investigation. Primary data is gathered through structured questionnaires administered to a carefully chosen sample of respondents, capturing pertinent information on attitudes, perceptions, and characteristics influencing the research outcomes.

The research employs a rigorous and comprehensive data analysis approach, utilizing advanced statistical methods such as Non-Parametric ANOVA and Structural Equation Modelling (SEM). These methodologies facilitate an in-depth exploration of intricate interactions among variables, offering a nuanced understanding of the research findings.

In summary, this chapter presents a detailed methodological overview, systematically delineating hypothesized relationships, research design

specifics, data collection methodologies, and sophisticated analytical techniques employed.

3.2 THEORETICAL FRAMEWORK

Information technology (IT) adoption and use have become generally recognised over the past few decades as essential to business practise. IT has aided in business process reengineering, adding value to the processes and increasing profit (Hadi et al., 2023) Still, research has not been able to explain why certain systems are used effectively while others are not. Even if information technology is becoming more and more powerful, managers and IT professionals are nevertheless concerned about the persistent issue of end users' reluctance to utilise systems that may result in substantial performance improvements if they were used.

The main goal of IT adoption research has been to investigate the factors that influence users' intentions to use new technology. The technology acceptance model (TAM) and innovation diffusion theory (IDT) are often considered as the most prominent theoretical models among the dozens that have been generated by these efforts. Although IDT takes into account a wider range of characteristics, a body of empirical research has demonstrated that TAM offers a more effective methodology for describing user acceptance recognition and behaviour. To benefit from both theoretical models, this study blends the TAM and IDT. This model will provide a clearer picture of the various influences on people's adoption intentions and usage patterns of IT. Researchers suggested the IDT-TAM framework to address challenges with IDT testing and to create a link between the traditional TAM theory and real-world IT adoption issues. (Zhang et al., 2008).

The study of user intentions to embrace new technologies has been the main focus of IT adoption research since the late 1980s. The technology acceptance model (TAM) and innovation diffusion theory (IDT) are often considered as the most prominent theoretical models among the few that have been generated by these efforts. TAM offers a superior paradigm for describing user acceptance recognition and behaviour, despite the fact that IDT takes into account more

extensive elements, according to a body of empirical research. The TAM and IDT are integrated in this paper to benefit from both theoretical models. This model will provide a clearer picture of the various influences on people's adoption intentions and usage patterns of IT.

3.2.1 TECHNOLOGY ACCEPTANCE MODEL (TAM)

TAM proposes that perceived ease of use and perceived usefulness of technology are predictors of user attitude towards using the technology, subsequent behavioural intentions, and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology. Figure 2 presents original version of TAM (Davis, 1989). , TAM suggests that a user's attitude toward utilising technology, their subsequent behavioural intentions, and their actual usage are all predicted by their perception of the technology's usefulness and ease of use. It was also thought that perceived usefulness of technology was influenced by perceived ease of use. Within the context of Technology Acceptance Modelling (TAM), perceived usefulness denotes the extent to which the user thinks that utilising the technology will enhance his or her performance at work, whereas perceived ease of use relates to how simple the user believes using the technology will be. Though perceived ease of use is also thought to have an impact on perceived usefulness and attitude toward utilising the technology, these are still seen as separate elements impacting the user's attitude toward using it.

3.2.2 DIFFUSION OF INNOVATION (IDT)

Innovation diffusion theory (IDT), which sheds light on the variables influencing innovations' uptake, is a tool for comprehending the drivers and barriers of innovation utilisation (Rogers, 1995). IDT is one theory connected to technology innovation research. It has been extensively used in many fields, including education, marketing, sociology, anthropology, and communication (Zaltman and Stiff, 1989). An innovation is described as "an idea, practise, or product that is regarded as new by an individual or another unit of adoption," and diffusion is the "process by which an invention is conveyed through certain

channels among the members of a social system over time." User adoption, defined as "the acceptance into use and the continuous use of a new idea or thing," is the means by which diffusion is accomplished (L. Chen et al., 2002). IDT makes an effort to clarify the innovative decision-making process, the variables that affect adoption rates, and the various adopter types. IDT's list of innovation attributes is what primarily adds value to our study. These aid in the explanation of the various user adoption rates.

3.2.3 RELATIONSHIP BETWEEN THE TWO THEORIES AND THIS RESEARCH

TAM and IDT share some clear parallels while coming from quite different backgrounds. IDT's relative advantage construct is frequently compared to TAM's PU construct, and the complexity construct has a striking resemblance to TAM's PEOU notion. (Teng et al., 2002)

This implies that TAM and IDT validate each other's results once more, which gives the researchers more assurance in the accuracy and consistency of both theories. TAM and IDT are frequently complementary. IDT entails developing a positive or negative attitude toward an innovation, but it doesn't offer more information on how the attitude develops into the decision to accept or reject it. Theoretical associations between beliefs, attitude, intention, and behaviour are provided by TAM, in contrast. TAM comes under fire for failing to consider how society views the adoption of new technologies. To increase TAM's capacity for prediction and explanation, several empirical research have proposed integrating it with additional acceptance and dissemination theories. Each of the five adopter types have varying degrees of influence from the five primary factors that impact innovation adoption.

- i. Relative Advantage - The degree to which an innovation is seen as better than the idea, program, or product it replaces.
- ii. Compatibility - How consistent the innovation is with the values, experiences, and needs of the potential adopters.
- iii. Complexity - How difficult the innovation is to understand and/or use.
- iv. Trialability - The extent to which the innovation can be tested or experimented with before a commitment to adopt is made.

- v. Observability - The extent to which the innovation provides tangible results

The IDT factors include innovation, task, individual, organization, and environment. To measure innovation, they used relative advantage, compatibility, complexity, observability, and trialability using an instrument developed by (Moore & Benbasat, 1991)

3.3 RESEARCH QUESTION

In the present study, the researcher aims to understand the changes in payment systems and the factors influencing the diffusion of mobile payments in the Delhi-NCR region. Mobile payments in India, facilitated by the UPI platform and fintech apps, are a rapidly growing and disruptive technology. This system, which requires a smartphone, mobile data, and an operational bank account, has become popular due to its safety, security, and instant settlement features. It benefits banks, customers, and merchants by reducing time and cash processing costs. The study seeks to identify the factors contributing to the diffusion of mobile payments from the customers' perspective. It employs a hybrid model combining the E-CRM framework, the Technology Acceptance Model, and Rogers' Diffusion of Innovation Theory, while also considering the impact of demographic factors. Therefore, the study addresses following questions:

How do factors of IDT (Relative Advantage, Complexity, Compatibility, Observability, Trialability) impact Perceived Usefulness of Mobile payment system for mobile payment system users?

How do factors of IDT (Relative Advantage, Complexity, Compatibility, Observability, Trialability) impact Perceived Ease of Use of Mobile payment system for mobile payment system users?

How does Perceived Usefulness and Perceived Ease of Use (factors of TAM) impacts satisfaction of mobile payment system users?

How does demographic background influence user satisfaction of mobile payment system users in Delhi-NCR region.

3.4 RESEARCH OBJECTIVES

The formulation of research objectives stems from a rigorous analysis of the research problem statement, following an extensive exploration of the field and a comprehensive review of relevant literature detailed in Chapter 2. Identified research gaps have guided the focus of this study. The primary aim is to critically examine the factors influencing the diffusion of mobile payments in the Delhi-NCR region. The study will consider the perspectives of customers and the demographic profiles that may affect this diffusion. Consequently, the research objectives are crafted to align with these overarching themes:

To measure the impact of factors of IDT (Relative Advantage, Complexity, Compatibility, Observability, Trialability) over Perceived Usefulness and Ease of Use (factors of TAM) in context of mobile payment system users of Delhi-NCR region.

To examine the impact of Perceived Usefulness and Ease of Use (factors of TAM) over user satisfaction of mobile payment system users of Delhi-NCR region.

To examine whether the demographic factors impact the user satisfaction of mobile payment system users in Delhi-NCR region.

3.5 HYPOTHESIS

Hypotheses are informed predictions about the relationships between variables in a study, guiding the research process and forming the foundation of scientific investigation (Spencer, 1875; Diehr et al., 1990). They serve as testable propositions that validate or refute specific claims through empirical research, providing structure and clarity to the study. By articulating anticipated outcomes, hypotheses focus research efforts, enhance objectivity, and ensure findings are based on empirical evidence. They set benchmarks for assessing research findings and facilitate meaningful conclusions. For the current study, the following hypotheses will be examined:

H1: There is a significant impact of Trialability on Perceived Usefulness of mobile payment system users.

H2: There is a significant impact of Relative Advantage on Perceived Usefulness of mobile payment system users.

H3: There is a significant impact of Complexity on Perceived Usefulness of mobile payment system users.

H4: There is a significant impact of Compatibility on Perceived Usefulness of mobile payment system users.

H5: There is a significant impact of Observability on Perceived Usefulness of mobile payment system users.

H6: There is a significant impact of Trialability on Ease of Use of mobile payment system users.

H7: There is a significant impact of Relative Advantage on Ease of Use of mobile payment system users.

H8: There is a significant impact of Complexity on Ease of Use of mobile payment system users.

H9: There is a significant impact of Compatibility on Perceived Usefulness of mobile payment system users.

H10: There is a significant impact of Observability on Perceived Usefulness of mobile payment system users.

H11: There is a significant impact of Perceived Usefulness of mobile payment system on user satisfaction of mobile payment system users.

H12: There is a significant impact of Ease of Use of mobile payment system on user satisfaction of mobile payment system users.

H13a: There is a significant impact of different genders on user satisfaction of mobile payment system users.

H13b: There is a significant impact of different age groups on user satisfaction of mobile payment system users.

H13c: There is a significant impact of different marital status on user satisfaction of mobile payment system users.

H13d: There is a significant impact of different educational level on user satisfaction of mobile payment system users.

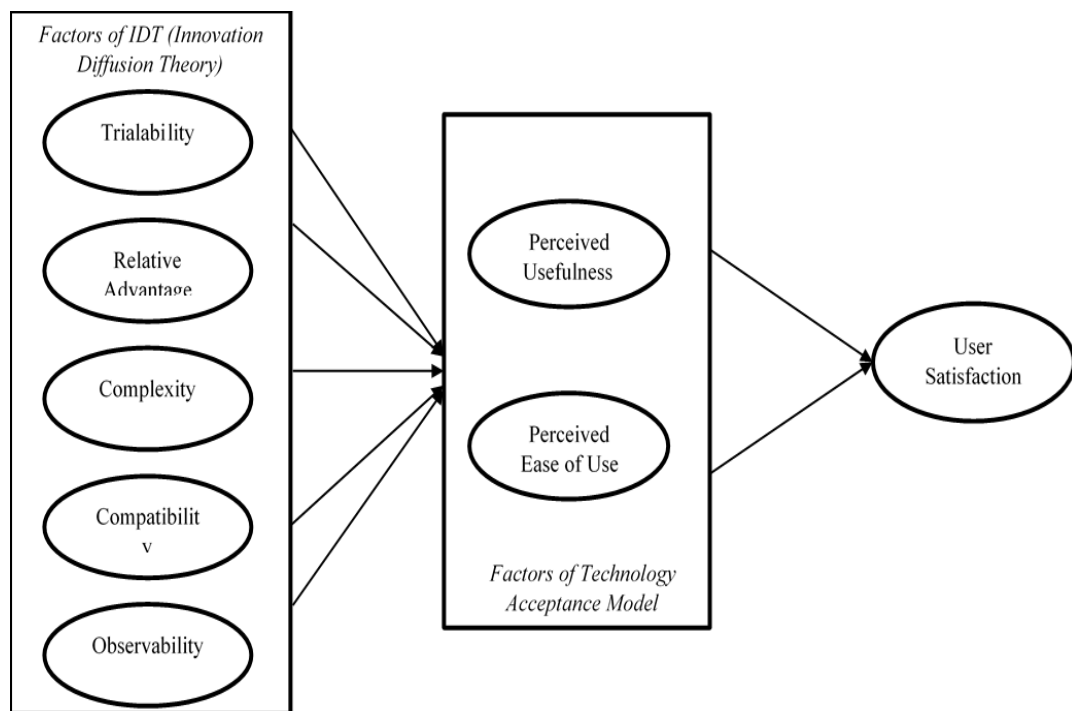
H13e: There is a significant impact of different occupation on user satisfaction of mobile payment system users.

H13f: There is a significant impact of different income level on user satisfaction of mobile payment system users.

H13g: There is a significant impact of different mobile payment duration on user satisfaction of mobile payment system users.

3.6 CONCEPTUAL MODEL

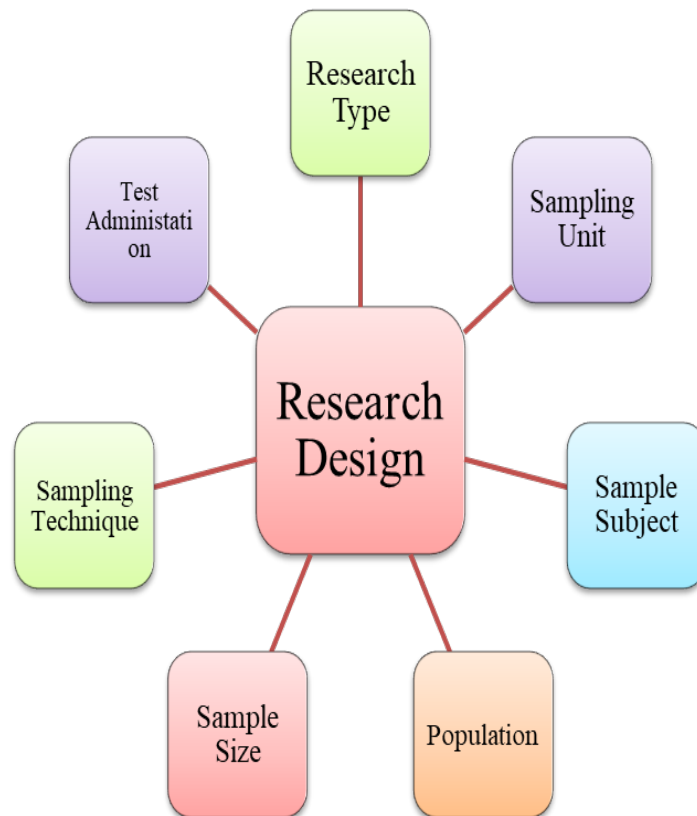
FIGURE 1: CONCEPTUAL MODEL



3.7 RESEARCH DESIGN

The broad contours of the research design is as per the pictorial representation at figure 2 below:

FIGURE 2: RESEARCH DESIGN



The primary objective of this study is to investigate and comprehend the effect of factors of Innovation Diffusion on the factor of Technological Acceptance Model and over the user satisfaction of mobile payment system. This analysis will be conducted through a descriptive, quantitative, and cross-sectional design.

3.7.1 RESEARCH TYPE

The present study adopts an exploratory research approach, characterized by its flexibility and capacity to uncover new insights, and generate hypotheses. This approach is particularly pertinent given the evolving landscape of mobile payment systems in the Delhi-NCR region, where definitive patterns may not yet be well-established (Stebbins, 2001; Swedberg, 2020). The primary objective of this study is to comprehensively investigate the diverse factors influencing the diffusion of mobile payments. This exploration will be conducted using a descriptive, quantitative, and cross-sectional research design. The descriptive aspect aims to provide a detailed portrayal of consumer behaviour specific to the adoption and use of mobile payments in the Delhi-NCR region. The quantitative approach involves systematically collecting numerical data through structured surveys administered to our target audience in this region. The cross-sectional design enables us to capture a snapshot of consumer attitudes, preferences, and behaviours related to mobile payments at a specific moment in time (Portier, Fabi and Darius, 2000; Kesmodel, 2018). This comprehensive methodology aims to provide nuanced insights into the complex dynamics of mobile payment adoption, offering valuable and timely information to enrich our understanding of the subject matter.

3.7.2 SAMPLING UNIT

Sampling is a methodological approach employed in this study to selectively choose individuals or subsets from the population of interest within the Delhi-NCR region. This method allows researchers to gather data on the factors influencing the diffusion of mobile payments effectively (*Thompson Sampling 2012.Pdf*, n.d.). In statistical terms, sampling is crucial for testing hypotheses about population characteristics and understanding participant traits (*Morse-1991-Evaluating-Qualitative-Research.Pdf*, n.d.). It ensures that the collected data is representative and relevant to the broader population, enabling researchers to generalize findings with confidence (*Morse-1991-Evaluating-Qualitative-Research.Pdf*, n.d.); (Acharya et al., 2013), while also considering the unique socio-cultural dynamics of the Delhi-NCR region. For this study,

research was conducted across various locations in Delhi-NCR, focusing on key areas. Each individual participant serves as a distinct sampling unit, allowing for a comprehensive and targeted exploration of the factors influencing mobile payment user satisfaction within the region.

3.7.3 SAMPLE SUBJECT & SAMPLING CRITERIA

Participants in this study are residents of the Delhi-NCR region, India, particularly those who actively use or are interested in mobile payment systems. Specific criteria have been established for selecting the sample:

Residence: Participants must reside in the Delhi-NCR region.

Age: Participants should range between 18 and 65 years.

Mobile Payment System Users: Individuals who actively use mobile payment systems or are interested in providing insights into their usage.

Gender: Both male and female participants will be included to ensure gender diversity.

Occupation: Participants from diverse occupational backgrounds, including professionals, students, and others.

Socio-Economic Status: Participants representing various socio-economic backgrounds to capture a comprehensive view.

Language Proficiency: Adequate proficiency in the survey language (English/ Hindi or local languages) to ensure accurate responses.

This selection criteria aims to assemble a diverse and representative group of participants from the Delhi-NCR region, focusing on those with direct experience or interest in mobile payment systems.

3.7.4 POPULATION

In statistics, a population is the pool from which a sample is drawn for a study. Thus, any selection grouped by a common feature can be considered a population. A sample is a statistically significant portion of a population. This study was conducted for the population of Delhi-NCR. Delhi (including NCR) NCR being the capital of India, is a hub of economic activity with well-established app-based aggregator services for transportation, food delivery etc.

Delhi-NCR is home to the physical marketplace as well as the digital marketplace, having diversity in the residents. Therefore, it was considered an appropriate population for examining factors influencing the diffusion of mobile payments.

According to Census 2011, the population of Delhi was around 16787941, which is further expected to become 3.2 million by 2023-34.

3.7.5 SAMPLE SIZE

It is important to calculate the size of the sample correctly mainly for two reasons. First, a sample intends to represent a population. Second, the data analysis and its interpretation to draw inferences of research that depends on the number of units for which the data is collected. These units can be responses from participants in a survey collected through a questionnaire.

While writing a thesis, researchers sometimes find it difficult to calculate the sample size. As mentioned by (Kothari, 2004), the sample should neither be too small nor too large. It should be optimum in size and fulfil the criteria of Representativeness, Efficiency, Reliability, Flexibility, and precision. In the present study, the sample size has been calculated using three approaches:

G* Power Analysis – Initially, , the G*Power analysis program, widely recognized in social and behavioural research for statistical tests, was utilized (Erdfelder et al., 1996), Faul and Buchner, 1996;(Cunningham & McCrum-Gardner, 2007); (Faul et al., 2007) This involved specifying parameters such as an effect size (f^2) of 0.1, a type-I error rate (α) of 0.05, and a power of 0.95, resulting in a calculated minimum sample size of 146 for the model under investigation (Cunningham & McCrum-Gardner, 2007); (Kang, 2021).

Cochran's Formula – Cochran's formula is one of the standard technique to determine the sample size (especially if the population is too large) (Woolson et al., 1986); (Ahmad & Halim, 2017). The formula for Cochran's sample size estimation is:

$$n = (Z^2 \times p \times (1-p)) / E^2$$

Where:

n is the required sample size.

Z is the critical value from the standard normal distribution corresponding to 95% confidence level (1.96).

p is the estimated proportion of the population with the characteristic of interest.

E is the desired margin of error at 5% (0.05).

According to the Kothari formula, the formula for sample size n is:

Rule of Thumb – This is one of the conventional approach to determine sample size, as per this, the sample size should be at least ten times greater than the number of free parameters in the model was considered (Raykov & Marcoulides, 2006); (Wilson Van Voorhis & Morgan, 2007) With 41 items covering constructs and 7 items for demographic data, a minimum of 480 observations were deemed as minimum necessary for robust data collection (Rvspk et al., 2020).

In conclusion, considering these three approaches, the researcher has collected and finalized a data set of 684 samples adequate for this study.

3.7.6 SAMPLING TECHNIQUE

Given the unique socio-economic dynamics and geographical specifics of the Delhi-NCR region, a practical approach is employed through Convenience Sampling. This method is chosen for its pragmatic suitability in addressing potential challenges in achieving a fully representative sample using probabilistic methods. Participants will be selected based on their availability, accessibility, and willingness to participate, primarily in areas where mobile payment users are likely to be found. This approach facilitates efficient data collection, acknowledging practical constraints that may hinder the implementation of more complex sampling methods (Sedgwick, 2013); (Stratton, 2021). While convenience sampling may not capture a fully representative cross-section of the entire population, it provides valuable insights into the factors influencing the adoption and use of mobile payments in the Delhi-NCR region. The focus remains on practicality and obtaining meaningful data in a diverse and dynamic urban setting (Das and Panja, 2022; El-Masri, Al-Yafi and Kamal, 2023; (Pinochet et al., 2023). This strategic use

of convenience sampling aligns with the study's objective to gain actionable insights into consumer behaviour and the factors driving mobile payment adoption, considering the unique contextual factors shaping the region.

3.7.7 TEST ADMINISTRATION

For this study, a carefully crafted questionnaire was developed exclusively in digital format using Google Forms to maximize convenience and accessibility for respondents. The researcher personally oversaw the data collection process ensuring adherence to strict procedural standards and minimizing potential response biases. Efforts were made to maintain objectivity and avoid any influences that could affect the integrity of the data. Participation in the survey was entirely voluntary, with adherence to the ethical principle of informed consent. Respondents were encouraged to participate willingly, with clear assurances that all information provided would be used solely for academic purposes, and that confidentiality and privacy would be maintained throughout the process. These measures were critical in ensuring the credibility and robustness of the survey results.

3.8 MEASURES USED

The questionnaire was divided into three distinct sections. The first part gathered demographic information about the participants. The first part gathered demographic information about the participants using nominal scales, while the remaining sections utilized 5-point Likert scales. Part 1 of the questionnaire was based on the Innovation Diffusion Theory (IDT) and included measures of compatibility (CPA), complexity (CPL), relative advantages (ADV), observability (OB), and trialability (TRI). The above items were adapted from previous studies (Davis, 1989); (Moore & Benbasat, 1991); (Taylor & Todd, 1995); (Karahanna et al., 1999), with some modifications made to align with the current research objectives. The total number items were 25. Part 2 of the questionnaire was based on the constructs of Perceived Usefulness (PU), Ease of Use (EU), and user satisfaction as outlined in the Technology Acceptance Model (TAM). The above items were adapted from previous studies (Davis,

1989); (Venkatesh & Davis, 2000); (Deng et al., 2010). The total number items were 11.

3.9 PILOT STUDY

In the initial phase of this study, a pilot test was conducted with 100 respondents, representing approximately 25% of the total sample size. Data collection involved administering questionnaires and conducting personal discussions to gather detailed feedback. This feedback was carefully analyzed to identify and rectify any potential issues, such as ambiguities or difficult questions. Additionally, the time required for participants to complete the survey was evaluated to ensure it was reasonable and to assess responsiveness, considering the need for any adjustments. To enhance participant engagement and streamline the survey process, a comprehensive review led to the refinement of the questionnaire. The original version was condensed from 6 pages to a more concise and focused 4-page format. This revision aimed to retain all essential elements for adequate response while optimizing the overall efficiency and clarity of the survey.

3.10 DATA COLLECTION DETAILS

In order to carry out the study for ascertaining the relationships among constructs in the conceptual framework, primary data collection was proposed to be done using survey questionnaires. Questionnaire was used because it is economical, structured and appropriate to capture primary data to test the hypotheses formed and to answer the research questions. The instruments of data collection involved administering pre-tested structured questionnaires and talking to respondents over telephonic, as deemed convenient, to respondents to clarify the questions. Given the resource constraint and time limitation on the part of the researcher, questionnaire was also sent via email to the users and on WhatsApp. The questionnaire was emailed to individuals in various age groups, income groups, education and job profiles as well as an equitable gender distribution.

A total of 1200 questionnaires were sent out via email and WhatsApp forwards which resulted in 750 responses to residents in New Delhi including NCR region. Out of these 750 responses, 66 responses were discarded due to missing value greater than 15%, making the final set of responses to be 684 with a response rate of 57%. The questionnaire was emailed to individuals in various age groups, income groups, education and job profiles as well as an equitable gender distribution. The questionnaire had collected responses on the various factors of TAM i.e. Perceived Ease of Use and Perceived Usefulness and factors of Diffusion of Innovation Theory i.e. Relative Advantage, Complexity, Compatibility, Observability and Trialability covering the various constructs of the research and its impact on satisfaction of using mobile payments.

The questionnaires were distributed, and data was collected over a period of five months from July 2023 to November 2023.

3.11 ETHICAL CONSIDERATIONS

Research ethics are the codes of behaviour adopted by a group suggesting what member of a group thought to do under a given circumstance (Zikmund, 2000) and the researcher tried to ensure confidentiality of the information that was provided by the respondents by respecting their rights and privacy through the process and was ensure that the study will be used for academic purpose and not for other purpose. Confidentiality was observed. In addition to that researchers in adhering with ethical issues guaranteed anonymity and acknowledge all the works of others used in this study and the respondent questionnaire are still kept under the researcher custody

3.12 STATISTICAL TOOLS USED

3.12.1 EXPLORATORY FACTOR ANALYSIS (EFA)

The fitness of the model or model validity was proposed to be examined by using the Exploratory factor analysis (EFA) which is a statistical procedure used to reduce many observed variables to a small number of "factors/components", reflecting that the clusters of variables are in common. In EFA the correlation among a group of observed variables are identified and transforms into a small

number of related factors. Briefly, EFA captures the groups of observed variables which are consistently moving together. In this process the consistent movements of observed variables are identified through factor extraction and factor rotation. Therefore, EFA is a useful tool for investigating the relations among observed variables and a small number of underlying factors. The two main issues to take into consideration to determine whether a particular set of data is appropriate for EFA: number of samples (sample size) and the strength of the relationship between indicators (variables) (Pallant, 2020). The adequacy of sampling is tested through KMO (Kaiser, 1974), while the strength of the relationship among variables is assessed through Bartlett's test of sphericity (Bartlett, 1954). It is worth noting that the indicators should be measured at the interval level.

3.12.1.1 KAISER MEYER OLKIN (KMO)

The adequacy of the sample is measured by KMO in SPSS. The sampling is adequate or sufficient if the value of Kaiser Meyer Olkin (KMO) is larger than 0.5 (Jamil & Hassan, 2014), according to (Pallant, 2020) the value of KMO is 0.6 and above. (Kaiser, 1974) recommends a bare minimum of 0.5 and the value between 0.5 and 0.7 are mediocre, value between 0.7 and 0.8 are good, value between 0.8 and 0.9 are great and value between 0.9 and above are superb (Hutcheson and Sofroniou, 1999).

3.12.1.2 BARTLETT TEST OF SPHERICITY

The strength of the relationship in SPSS can be measured by a Bartlett Test of Sphericity. It is actually a measure of a multivariate normality of set of distribution. This test also checks the null hypothesis that the original correlation matrix is an identity matrix. The significant value less than 0.05 indicates that these data do not produce an identity matrix and are thus approximately multivariate normal and acceptable for further analysis (Jamil & Hassan, 2014) (Pallant, 2020).

Factors represent latent constructs that cannot be adequately captured by individual variables. The analysis aimed to condense a large number of

variables into more manageable factors for further examination. Principal Component Analysis with varimax rotation was employed for this purpose. To assess the adequacy of the sample, the Kaiser-Meyer-Olkin measure and Bartlett's test of sphericity are proposed to be utilized. The loading of items under factors are also proposed to be examined under the varimax rotation.

3.12.2 PLS-SEM (PARTIAL LEAST SQUARE-STRUCTURAL EQUATION MODELLING)

Researchers utilized Smart PLS 4.0 software for Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyse data and evaluate proposed relationships. PLS-SEM is preferred for its robustness in handling complex models and non-normal datasets (Hair, Ringle and Sarstedt, 2011). Unlike traditional methods like Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), PLS-SEM improves interpretability, offering a nuanced understanding of relationships between latent variables and their indicators (Hair et al., 2010, 2019; (Hair et al., 2014).

PLS-SEM visualizes the significance of predictors and their interconnections, effectively managing models with multiple mediating and moderating effects (Hair et al., 2010),(Hair et al., 2021); (Hair et al., 2013); (Hair et al., 2014); (Henseler et al., 2015); (Hair et al., 2017). It is particularly suitable for prediction and theory development and works well with small to medium sample sizes. Its ability to model latent constructs and simultaneously assess measurement and structural models makes it ideal for this research (Henseler et al., 2015);(Hair et al., 2017). In summary, using PLS-SEM via Smart PLS 4.0 ensures a rigorous analysis of complex variable relationships, demonstrating the study's commitment to advanced statistical methods for precise and reliable findings.

3.12.3 NON-PARAMETRIC ANOVA (ANALYSIS OF VARIANCE) TEST

In this study, the use of Analysis of Variance (ANOVA) is crucial for assessing differences among various groups and identifying statistically significant

distinctions (Stohle & Wold, 1989);(Miller Jr, 1997). ANOVA examines if the means of multiple groups are equal, considering both between-group and within-group variations (Girden, 1992); (Cardinal & Aitken, 2013). Given the non-normal distribution of the dataset, non-parametric methods such as the Mann-Whitney U test and the Kruskal-Wallis test are employed to evaluate the influence of demographic factors on customer satisfaction.

The Mann-Whitney U test compares two independent groups(MacFarland & Yates, 2016) (Sheskin, 2020), while the Kruskal-Wallis test extends this comparison to multiple groups, determining if there are significant differences in rank distributions across these groups (Ostertagová et al., 2014). These non-parametric techniques provide a detailed examination of inter-group and intra-group variations, offering valuable insights into how demographic factors like age, gender, occupation, education, income level, and family size affect customer satisfaction and customer lifetime value.

In this study, non-parametric ANOVA methods are essential for analysing the impact of demographic factors on mobile payment system users. By comparing ranks and variances, these tests reveal significant demographic influences on user preferences and behaviours, uncovering complex patterns that simpler evaluations might miss. These non-parametric methods are executed using IBM-SPSS 25.0 software. The Mann-Whitney U test and Kruskal-Wallis test provide critical statistical measures, with the latter using the H-statistic to assess the ratio of between-group to within-group variability. These rigorous statistical tests form the foundation for hypothesis formulation and validation concerning demographic factors.

3.13 CHAPTER SUMMARY

This chapter presents the methodological foundation of the research study, detailing the systematic approach employed to examine the factors influencing the diffusion of mobile payments in the Delhi-NCR region. The chapter covers the problem statement, objectives, hypotheses, research questions, variables, and data collection methods. It employs a cross-sectional design, gathering primary data through structured questionnaires. Advanced statistical methods such as Non-Parametric ANOVA and Structural Equation Modelling (SEM) are used for data analysis. The research is guided by a positivist approach and tests hypotheses using empirical analysis. Ethical considerations, sampling criteria, and statistical tools are also discussed comprehensively.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

4.1 OVERVIEW

This chapter presents a detailed analysis of data collected to explore the relationships between Perceived Usefulness, Ease of Use (factors of the Technology Acceptance Model), and satisfaction in using mobile payment services. It also investigates the impact of Diffusion of Innovation parameters on satisfaction, moderated by demographic variables.

Challenges in data collection, such as respondent reluctance, necessitated a shift to convenience sampling. Efforts were made to mitigate this by increasing respondent numbers and emphasizing the academic purpose of the research. The chapter begins with a demographic profile of respondents, covering age, gender, education, and occupation. Statistical techniques such as normality tests, reliability analysis, and checks for common method biases are applied to ensure data integrity.

ANOVA is used to examine relationships between demographic variables and satisfaction, followed by Structural Equation Modelling (SEM) to analyze the measurement and structural models. Mediation analysis identifies latent factors influencing satisfaction. The chapter concludes with a synthesis of findings, providing comprehensive insights into the factors affecting satisfaction with mobile payment services.

4.2 DEMOGRAPHIC PROFILE OF RESPONDENTS

4.2.1 GENDER

The demographic breakdown of the participants by gender reveals that a majority of 448 respondents, or 65.5%, identified as male. Meanwhile, 236 participants, accounting for 34.5%, identified as female. The total number of respondents was 684, ensuring a comprehensive representation of both genders.

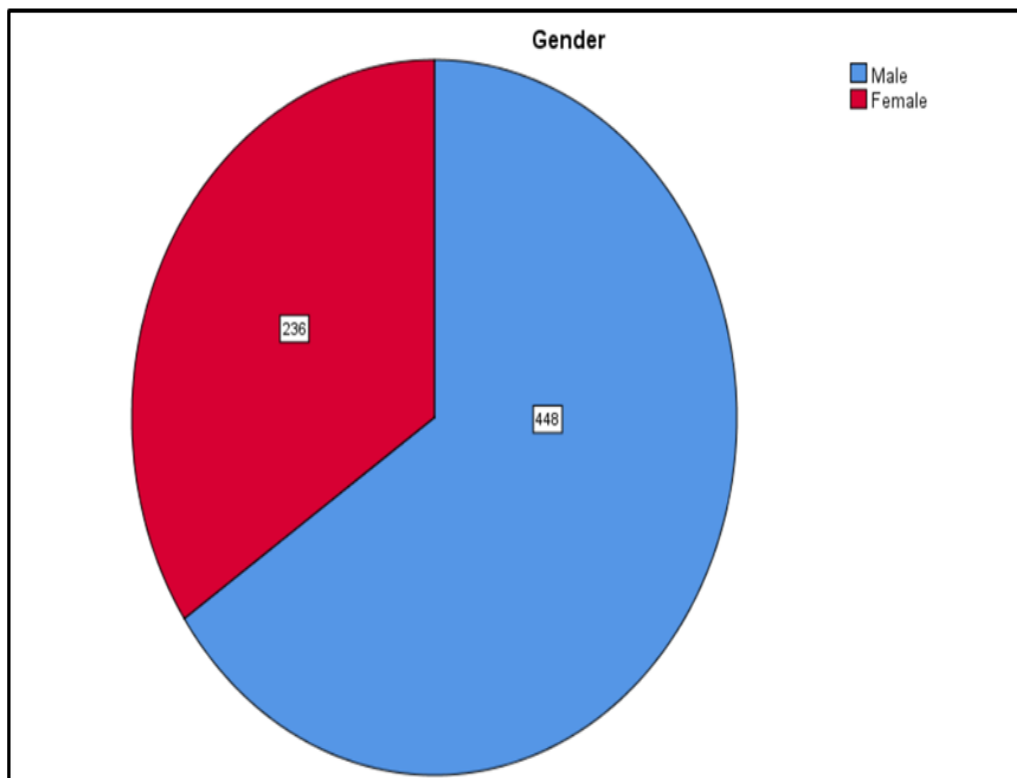


FIGURE 4.1 GENDER PROFILE OF RESPONDENTS

4.2.2 AGE

The age distribution among the respondents shows a diverse range of age groups. Participants aged 16-25 years comprised 100 individuals (14.6%). The largest age group was 26-35 years, with 309 participants (45.2%). This was followed by 137 individuals (20.0%) in the 36-45 years category, 80 respondents (11.7%) aged 46-55 years, 54 participants (7.9%) aged 56-65 years, and a small group of 4 individuals (0.6%) above 65 years. In total, 684 respondents participated in the survey, reflecting a wide age range.

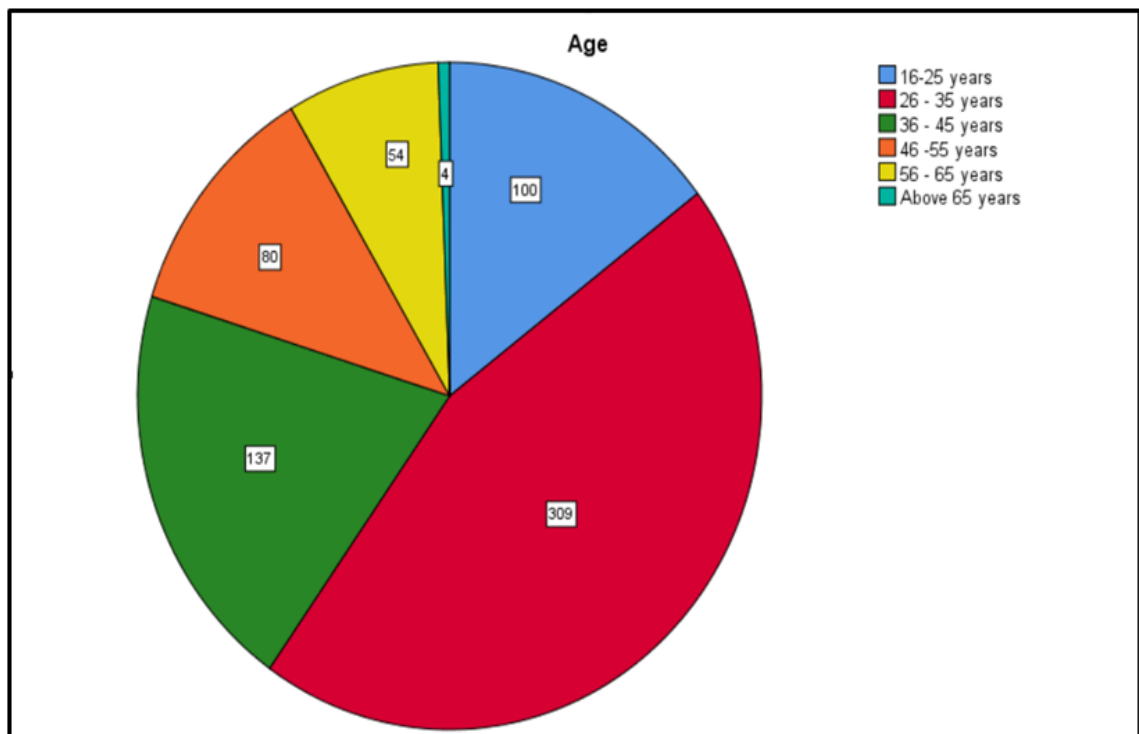


FIGURE 4.2 AGE PROFILE OF RESPONDENTS

4.2.3 OCCUPATION

The occupational status of the respondents indicates a variety of employment situations. A total of 107 respondents (15.6%) were students, while 64 individuals (9.4%) were not employed. The majority, 404 participants (59.1%), were engaged in private business or jobs. Additionally, 72 respondents (10.5%) worked in government or public service, and 37 participants (5.4%) were corporate professionals. The total number of respondents was 684, covering a broad spectrum of occupational categories.

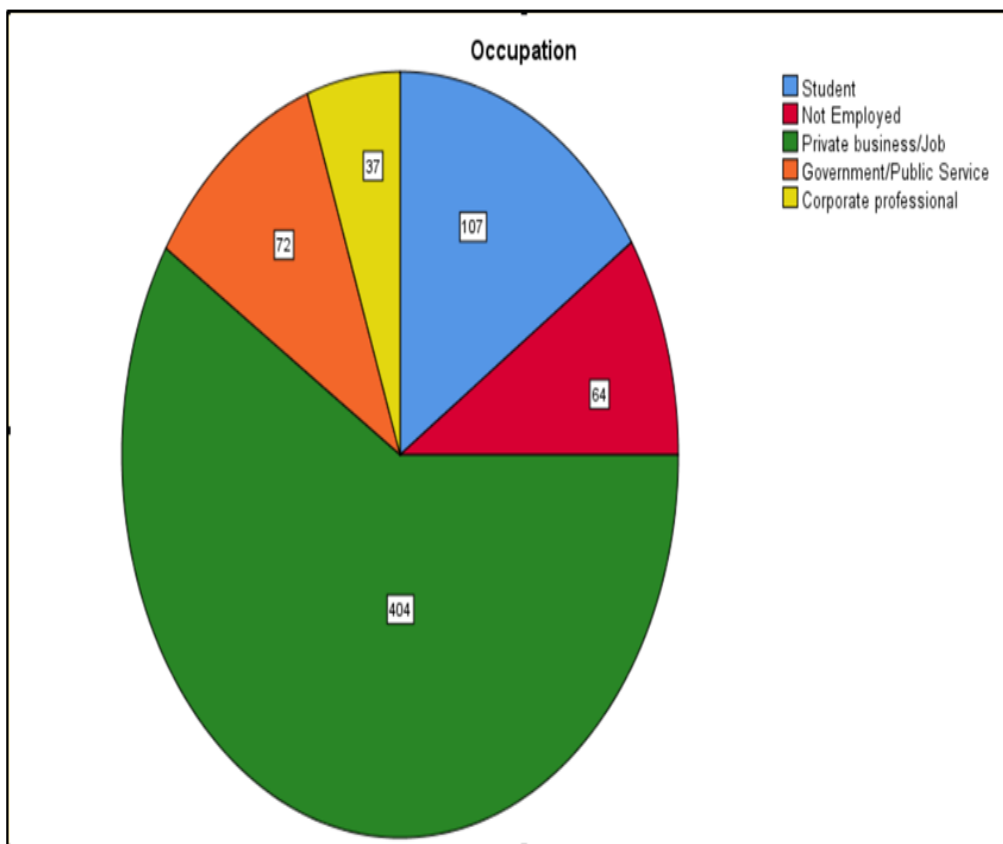


FIGURE 4.3 OCCUPATION PROFILE OF RESPONDENTS

4.2.4 EDUCATION QUALIFICATION

Educational qualifications among the respondents varied significantly. There were 80 individuals (11.7%) with higher secondary education and below. A substantial number, 339 respondents (49.6%), had completed their undergraduate studies. Postgraduate qualifications were held by 240 participants (35%). Additionally, 19 respondents (2.8%) were Chartered Accountants, and 6 individuals (0.9%) held Ph.D. degrees. The total number of respondents was 684, representing a wide range of educational backgrounds.

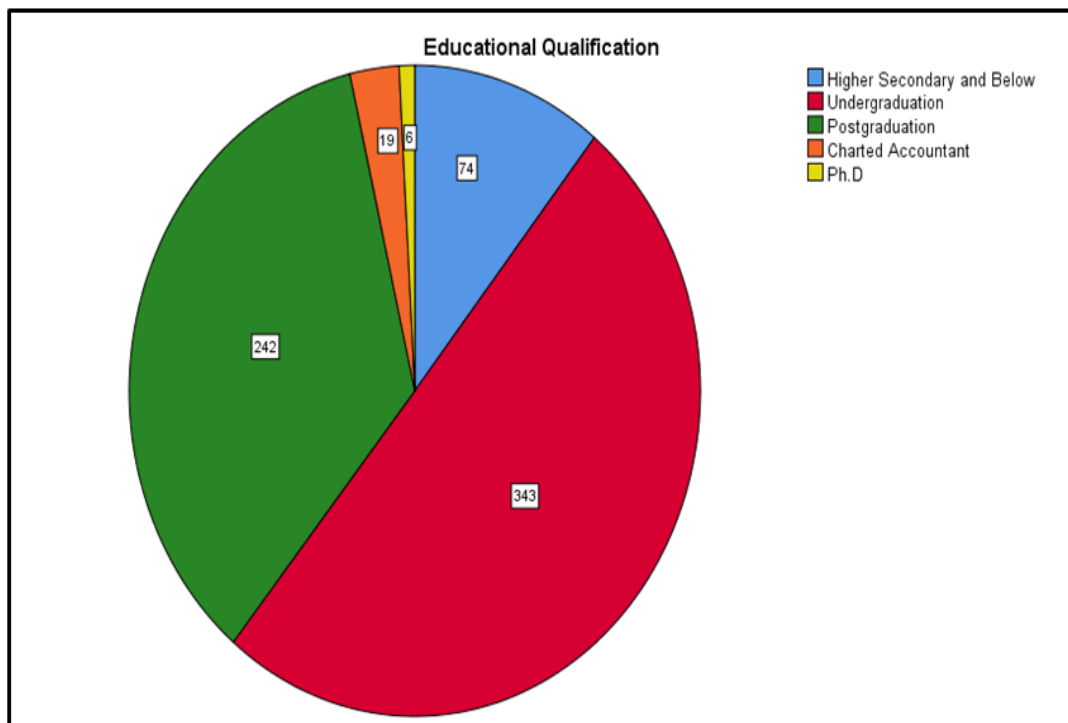


FIGURE 4.4 EDUCATION PROFILE OF RESPONDENTS

4.2.5 MARITAL STATUS

The marital status of the participants revealed that 192 respondents (28.1%) were single. A significant majority of 463 participants (67.7%) were married. Additionally, 29 individuals (4.2%) were divorced, widowed, or separated. The total number of respondents was 684, encompassing various marital statuses.

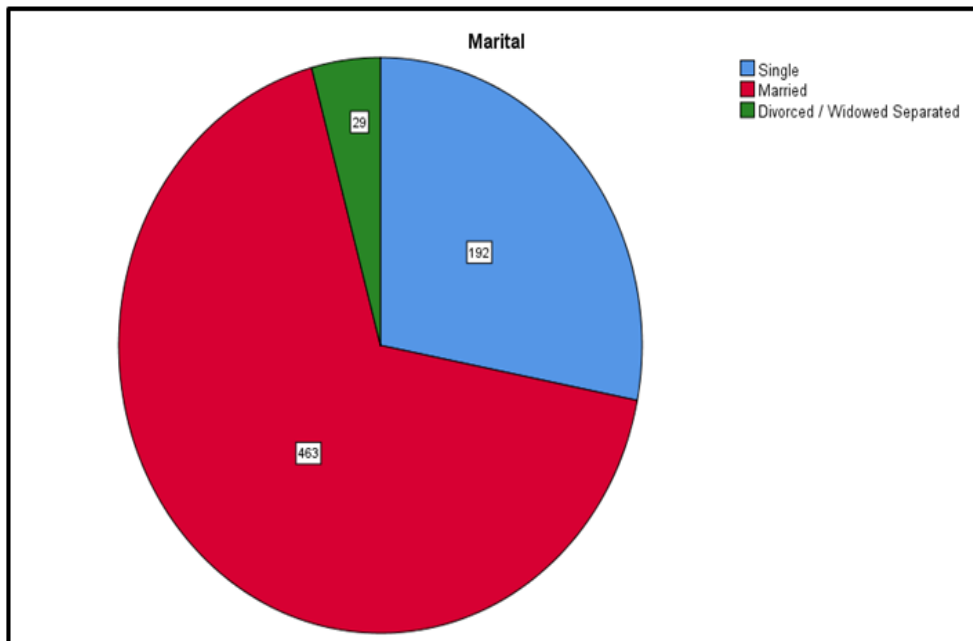


FIGURE 4.5 MARITAL STATUS OF RESPONDENTS

4.2.6 AVERAGE ANNUAL INCOME

The average annual income of the respondents varied across different income brackets. A total of 140 participants (20.5%) had an annual income of less than 100,000. The largest group, comprising 239 respondents (34.9%), reported an income between 100,000 and 200,000. This was followed by 204 individuals (29.8%) with an income range of 200,001 to 500,000. Additionally, 67 respondents (9.8%) earned between 500,001 and 1,000,000, and 34 participants (5.0%) had an income exceeding 1,000,000. The total number of respondents was 684, reflecting diverse income levels.

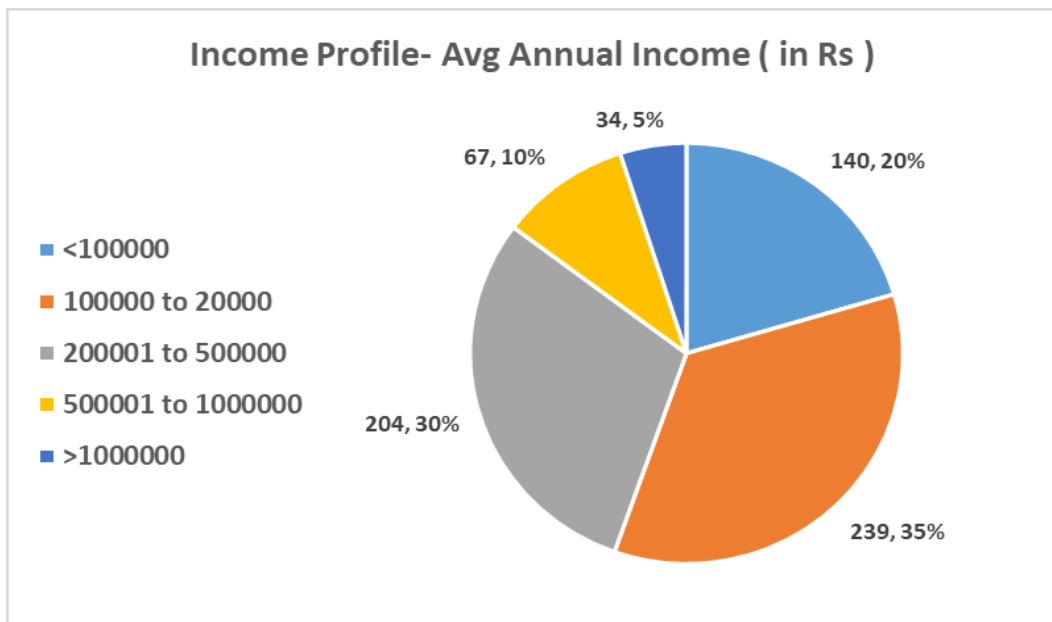


FIGURE 4.6 INCOME PROFILE OF RESPONDENTS

4.2.7 TYPE OF MOBILE PAYMENT USED

Regarding the type of mobile payment service frequently used, 418 respondents (61.1%) reported using bank apps. Third-party apps were utilized by 149 participants (21.8%). Wallet services were the choice for 34 respondents (5.0%). Additionally, 83 participants (12.2 %) used more than one app. The total number of respondents was 684, indicating varied preferences in mobile payment services.

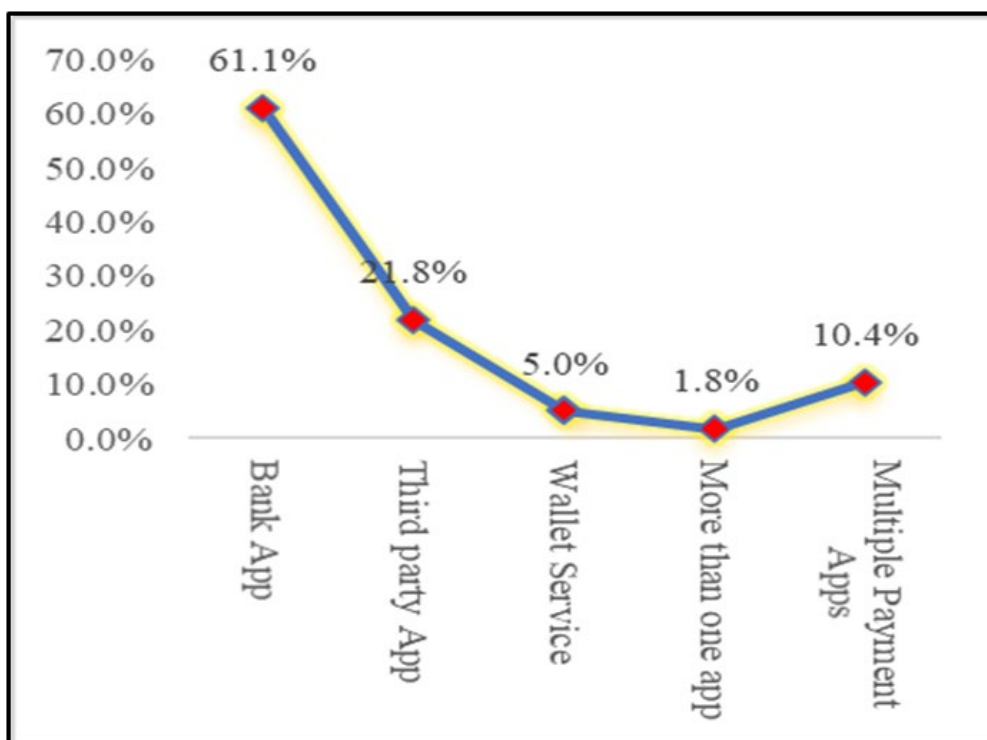


FIGURE 4.7 TYPE OF MOBILE PAYMENTS USED

4.2.8 DURATION OF MOBILE PAYMENT USAGE

The duration of mobile payment usage among the respondents showed that 118 participants (17.2%) had been using mobile payments for less than one year. A significant portion, 309 respondents (45.2%), had been using mobile payments for 1-3 years. Additionally, 257 participants (37.6%) reported using mobile payments for more than three years. The total number of respondents was 684, demonstrating varying levels of experience with mobile payment services.

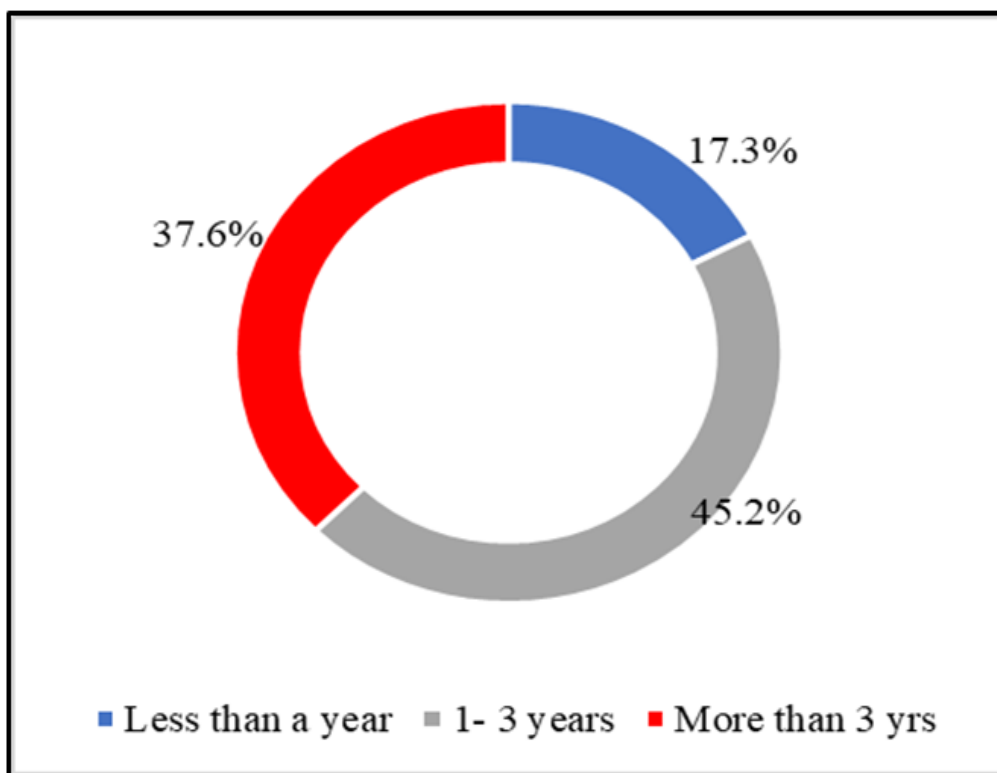


FIGURE 4.8 PROFILE OF DURATION OF USAGE OF MOBILE PAYMENTS

**THE SUMMARY OF THE DEMOGRAPHIC PROFILED ARE
DETAILED IN TABLE**

Table 4.1: Respondent profile

Demographics	Indicators	Frequency	Percentage
Gender	Male	448	65.5
	Female	236	34.5
Total		684	100
Age	16-25 years	100	14.6
	26-35 years	309	45.2
	36-45 years	137	20.0
	46-55 years	80	11.7
	56-65 years	54	7.9
	Above 65 years	4	.6
Total		684	100
Occupation	Student	107	15.6
	Not employed	64	9.4
	Private business/job	404	59.1
	Government/ Public Service	72	10.5
	Corporate professional	37	5.4
Total		684	100
Education Qualification	Higher Secondary and Below	80	11.7
	Under graduation	339	49.6
	Postgraduation	240	35.1
	Chartered Accountant	19	2.8
	Ph.D.	6	0.9
Total		684	100

Marital Status	Single	192	28.1
	Married	463	67.7
	Divorced/Widowed Separated	29	4.2
Total		684	100
Average Annual Income	<100000	140	20.5
	100000 to 20000	239	34.9
	200001 to 500000	204	29.8
	500001 to 1000000	67	9.8
	>1000000	34	5.0
Total		684	100
Which type of mobile payment service do you frequently use	Bank app	418	61.1
	Third party App	149	21.8
	Wallet Service	34	5.0
	More than one App	12	1.8
	Multiple payment App	71	10.4
Total		684	100
Duration or usage of mobile payment	Less than 1 year	118	17.3
	1-3 years	309	45.2
	More than 3 years	257	37.6
Total		684	100

4.3. DESCRIPTIVE STATISTICS

4.3.1 RELATIVE ADVANTAGE

Respondents rated mobile payments favourably compared to traditional methods across multiple dimensions. They perceived mobile payments as highly accessible (mean = 4.06), environmentally friendly (mean = 3.99), convenient (mean = 4.02), and secure (mean = 4.02). Mobile payments were also seen as enabling quicker task completion (mean = 3.98) and offering greater flexibility in financial management (mean = 4.00). Additionally, respondents noted that mobile payments provide a wider range of payment options (mean = 4.02). Overall, these ratings underscore the perceived advantages of mobile payments over traditional methods, with a strong average score of 4.00 for Relative Advantage. The detailed results were displayed in table 4.2.

Table 4.2: Descriptive Statistics: Relative Advantage

Items	Mean	Std. Deviation
Mobile payment provides better accessibility compared to traditional payment methods.	4.06	0.608
Mobile payments are more environmentally friendly than traditional paper-based transactions.	3.99	0.622
Using mobile payments enables me to accomplish tasks more quickly	3.98	0.608
Using mobile payment is more convenient compared to traditional payment methods.	4.02	0.625
Mobile payment offers better security features than traditional payment methods.	4.02	0.620
Mobile payment allows for easier tracking of expenses.	3.90	0.672
Mobile payment provides greater flexibility in managing finances.	4.00	0.612
Mobile payment offers a wider range of payment options compared to traditional methods.	4.02	0.655
Relative Advantage	4.00	0.539

4.3.2 COMPLEXITY

Respondents generally found the process of setting up mobile payment on their devices to be straightforward, as indicated by an average score of 3.94 with a standard deviation of 0.552. They also perceived using mobile payment to require minimal effort (mean = 3.96, SD = 0.540) and found it easy to troubleshoot any issues that arose (mean = 3.98, SD = 0.539). Remembering how to use mobile payment was not considered challenging, with a mean score of 3.96 and a standard deviation of 0.528. Overall, these responses reflect a perception of relatively low complexity associated with using mobile payment methods, supported by an average score of 3.96 with a standard deviation of 0.495 for the construct of Complexity. The detailed results were displayed in table 4.3.

Table 4.3: Descriptive Statistics: Complexity

Items	Mean	Std. Deviation
Setting up mobile payment on my device was straightforward.	3.94	0.552
Using mobile payment requires minimal effort on my part.	3.96	0.540
I find it easy to troubleshoot any issues with mobile payment.	3.98	0.539
Remembering how to use mobile payment is not a challenge for me.	3.96	0.528
Complexity	3.96	0.495

4.3.3 OBSERVABILITY

Respondents indicated strong perceptions regarding the observability of benefits associated with mobile payment usage. They agreed that the benefits of using mobile payment are clear (mean = 3.99, SD = 0.541) and that they receive positive feedback from others when using it (mean = 4.00, SD = 0.569). The observation that people around them are adopting mobile payment also encourages their own usage (mean = 3.98, SD = 0.551). Respondents noted improvements in their financial management (mean = 3.98, SD = 0.575) and

observed mobile payment's impact on their daily transactions (mean = 4.00, SD = 0.516). Additionally, they recognized the visibility of mobile payment benefits in their financial records (mean = 4.00, SD = 0.522). These findings highlight a high level of observability regarding the benefits of mobile payment, supported by an average score of 3.99 with a standard deviation of 0.457 for the construct of Observability. The detailed results were displayed in table 4.4.

Table 4.4: Descriptive Statistics: Observability

Items	Mean	Std. Deviation
The benefits of using mobile payment are clear to me.	3.99	0.541
I receive positive feedback from others when I use mobile payment.	4.00	0.569
People around me are adopting mobile payment, which encourages me to use it.	3.98	0.551
I notice improvements in my financial management since using mobile payment.	3.98	0.575
Mobile payment's impact on my daily transactions is evident.	4.00	0.516
The benefits of mobile payment are visible in my financial records.	4.00	0.522
Observability	3.99	0.457

4.3.4 TRIALABILITY

Respondents indicated positive perceptions of the trialability aspect of mobile payment apps. They found it easy to download and test the functionality of mobile payment apps (mean = 3.93, SD = 0.720) and reported that they could easily receive help from friends, family, and colleagues when using these apps (mean = 3.94, SD = 0.672). Respondents also found the help functionality within the apps to be useful (mean = 3.94, SD = 0.711). These responses highlight a favourable view of the trialability of mobile payment apps, supported by an average score of 3.93 with a standard deviation of 0.661 for the construct of Trialability. The detailed results were displayed in table 4.5.

Table 4.5: Descriptive Statistics: Trialability

Items	Mean	Std. Deviation
It was easy to download and test the functionality of a mobile payment app	3.93	0.720
I could easily get help from friends, family and colleagues for using the mobile payment app	3.94	0.672
Help functionality within the app was useful	3.94	0.711
Trialability	3.93	0.661

4.3.5 COMPATIBILITY

Respondents perceive mobile payment as highly compatible with their lifestyle and banking habits. They find that mobile payment integrates seamlessly with the way they conduct transactions (mean = 3.88, SD = 0.621) and aligns well with their current banking habits (mean = 3.88, SD = 0.605). Additionally, respondents feel that mobile payment is compatible with their trust in digital transactions (mean = 3.90, SD = 0.655). These findings indicate a strong perception of compatibility with mobile payment methods, supported by an average score of 3.89 with a standard deviation of 0.580 for the construct of Compatibility. The detailed results were displayed in table 4.8.

Tale 4.6: Descriptive Statistics Compatibility

Items	Mean	Std. Deviation
Mobile payment is compatible with my lifestyle.	3.88	0.595
Mobile payment aligns well with my current banking habits.	3.88	0.605
Mobile payment integrates seamlessly with the way I conduct transactions.	3.88	0.621
Mobile payment is compatible with my trust in digital transactions.	3.90	0.655
Compatibility	3.89	0.580

4.3.6 PERCEIVED USEFULNESS

Respondents generally perceive mobile payment as useful based on several indicators. They value the ability to see settlement statuses at the receiver's end (mean = 3.89, SD = 0.529) and appreciate receiving confirmatory messages via SMS and email (mean = 3.92, SD = 0.520). Additionally, they find it useful that mobile payment facilitates better time management (mean = 3.93, SD = 0.539). These responses indicate a positive perception of the usefulness of mobile payment methods, supported by an average score of 3.92 with a standard deviation of 0.452 for the construct of Perceived Usefulness. The detailed results were displayed in table 4.5.

Table 4.7: Descriptive Statistics: Perceived Usefulness

Items	Mean	Std. Deviation
I can see the settlement status (useful) at receiver's end	3.89	0.529
I get confirmatory messages via SMS and mail	3.92	0.520
I can see check account balances and operations in my account	3.95	0.469
Facilitates better time management (useful)	3.93	0.539
Perceived Usefulness	3.92	0.452

4.3.7 EASE OF USE

Respondents generally find mobile payment methods to be user-friendly and easy to use. They reported that making mobile payments is straightforward (mean = 3.90, SD = 0.548) and navigating mobile banking menus is easy (mean = 3.90, SD = 0.532). Additionally, respondents noted that mobile payment operations do not require technical expertise (mean = 3.90, SD = 0.568) and that the interfaces of mobile payment applications are user-friendly (mean = 3.93, SD = 0.515). These findings indicate a positive perception of the ease of use

associated with mobile payment methods, supported by an average score of 3.91 with a standard deviation of 0.489 for the construct of Ease of Use. The detailed results were displayed in table 4.6.

Table 4.8: Descriptive Statistics: Ease of Use

Items	Mean	Std. Deviation
It is easy to make mobile payments	3.90	0.548
My mobile payment menu is very easy to navigate	3.90	0.532
Mobile payment does not require technical expertise to operate.	3.90	0.568
The interface of mobile payment applications is user-friendly.	3.93	0.515
Ease of Use	3.91	0.489

4.3.8 USER SATISFACTION

Respondents expressed satisfaction with various aspects of mobile payment. They found mobile payment transactions convenient (mean = 3.93, SD = 0.619) and appreciated the speed at which transactions are completed (mean = 3.90, SD = 0.658). Additionally, respondents valued the security features provided by mobile payment applications (mean = 3.95, SD = 0.609). These findings indicate a positive level of user satisfaction with mobile payment methods, supported by an average score of 3.93 with a standard deviation of 0.577 for the construct of User Satisfaction. The detailed results were displayed in table 4.9.

Table 4.9: Descriptive Statistics: User Satisfaction

Items	Mean	Std. Deviation
The convenience of mobile payment transactions.	3.93	0.619
The speed of completing transactions using mobile payment.	3.90	0.658
The security features provided by mobile payment applications.	3.95	0.609
User satisfaction.	3.93	0.577

4.4 EXPLORATORY FACTOR ANALYSIS

Factor analysis is a statistical data reduction and analysis technique that strives to explain correlations among multiple outcomes as the result of one or more factors. The technique involves data reduction, as it attempts to represent a set of variables by a smaller number. Factor analysis attempts to discover the unexplained factors that influence the covariation among multiple observations. These factors represent underlying concepts that cannot be adequately measured by a single variable. For example, various measures on factors influencing diffusion may be influenced by one or more underlying factors like perceived ease of use or perceived usefulness. Factor analysis is especially used in survey research, in which the responses to each question represent an outcome. Because multiple questions often are related, underlying factors may influence subject responses.

Table 4.10: Exploratory Factor Analysis

KMO and Barlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.919
Barlett's Test of Sphericity	Approx. Chi-Square	25182.926
	df	630
	sig	0.000

According to table 4.10 above, the Bartlett's Test of Sphericity showed that the data variables obtained after the data reduction process were significant (0.000) to measure the dependent variable.

Exploratory factor analysis (EFA) has been used to discover the factor structure of the measure and to examine its internal reliability. Factors represent latent constructs that cannot be adequately captured by individual variables. The analysis aimed to condense a large number of variables into more manageable factors for further examination. Principal Component Analysis with varimax rotation was employed for this purpose.

To assess the adequacy of the sample, the Kaiser-Meyer-Olkin measure and Bartlett's test of sphericity were utilized. The KMO measure yielded a value of .919, surpassing the recommended threshold of 0.6, while Bartlett's test of sphericity returned a significant result ($\chi^2=25182.926$, d.f = 630, $p<.000$). Eigenvalues were used to extract eight factors, each accounting for more than one unit of variance. Together, these eight factors explained 80.5% of the total variance in the data which can be inferred from the rotated component matrix table.

Table 4.11: Rotated Component Matrix

Parameters	Communality	Component							
		1	2	3	4	5	6	7	8
Mobile payment offers better security features than traditional payment methods.	.818	.849	.140	.122	.106	.177	.073	.079	.090
Mobile payment provides better accessibility compared to traditional payment methods.	.839	.838	.267	.121	.021	.139	.030	.134	.110
Using mobile payment is more convenient compared to	.826	.820	.259	.139	.047	.170	.027	.115	.152

traditional payment methods.									
Mobile payment provides greater flexibility in managing finances.	.790	.806	.214	.129	.150	.119	.105	.150	.094
Mobile payment offers a wider range of payment options compared to traditional methods.	.779	.800	.200	.133	.154	.192	.044	.106	.093
Mobile payments are more environmentally friendly than traditional paper-based transactions.	.706	.729	.197	.102	.027	.098	.171	.191	.221
Using mobile payments enables me to accomplish tasks more quickly	.646	.700	.220	.089	.119	.149	.189	.075	.148
Mobile payment	.650	.670	.124	.185	.186	.131	.217	.150	.172

allows for easier tracking of expenses.									
The benefits of mobile payment are visible in my financial records.	.745	.195	.777	.190	.066	.152	.137	.070	.125
Mobile payment's impact on my daily transactions is evident.	.695	.143	.772	.164	.056	.083	.153	.094	.096
The benefits of using mobile payment are clear to me.	.741	.335	.725	.137	.241	.067	.116	.079	.044
I receive positive feedback from others when I use mobile payment.	.742	.391	.703	.109	.204	.052	.043	.147	.123
I notice improvements in my financial management since using mobile payment.	.716	.356	.672	.105	.249	.063	.195	.105	.108

People around me are adopting mobile payment, which encourages me to use it.	.719	.321	.665	.078	.329	.051	.145	.116	.151
Mobile payment is compatible with my lifestyle.	.906	.165	.172	.858	.156	.164	.161	.160	.104
Mobile payment integrates seamlessly with the way I conduct transactions.	.888	.178	.189	.843	.114	.205	.140	.155	.102
Mobile payment aligns well with my current banking habits.	.870	.185	.178	.834	.144	.130	.142	.153	.164
Mobile payment is compatible with my trust in digital transactions.	.859	.235	.134	.808	.086	.172	.209	.181	.138
The interface of mobile payment application	.837	.122	.191	.146	.859	.064	.112	.079	.053

ns is user-friendly.									
My mobile banking menu is very easy to navigate	.843	.181	.211	.104	.816	.194	.174	.088	.114
Mobile payment does not require technical expertise to operate.	.789	.129	.093	.150	.806	.169	.216	.060	.113
It is easy to make mobile payments	.836	.100	.283	.061	.787	.163	.183	.145	.206
Setting up mobile payment on my device was straightforward.	.877	.140	.117	.152	.134	.863	.178	.043	.157
Using mobile payment requires minimal effort on my part.	.865	.214	.089	.198	.156	.855	.094	.051	.073
Remembering how to use mobile payment is not a challenge for me.	.826	.200	.054	.083	.151	.834	.212	-.001	.118
I find it easy to troubleshoot any issues with	.819	.295	.109	.181	.106	.814	.098	.049	.034

mobile payment.									
I can see the settlement status (useful) at receivers' end	.802	.107	.038	.197	.147	.210	.816	.086	.103
I get confirmatory messages via SMS and mail	.822	.167	.229	.144	.231	.215	.779	.107	.062
Facilitates better time management (useful)	.806	.161	.239	.120	.187	.104	.766	.182	.207
I can see the settlement status (useful) at receivers' end	.748	.123	.280	.282	.253	.145	.646	.174	.204
The convenience of mobile payment transactions	.850	.164	.141	.190	.126	.048	.132	.849	.111
The speed of completing transactions using mobile payment.	.873	.230	.167	.192	.149	.010	.135	.841	.084
The security features	.814	.269	.098	.175	.052	.059	.142	.808	.147

provided by mobile payment applications.									
I could easily get help from friends, family and colleagues for using the mobile payment app	.893	.265	.184	.123	.209	.164	.201	.133	.804
Help functionality within the app was useful	.900	.324	.188	.244	.165	.131	.156	.117	.786
It was easy to download and test the functionality of a mobile payment app	.879	.311	.168	.185	.149	.141	.171	.176	.786
Eigenvalues		15.65	3.05	2.50	2.28	1.66	1.43	1.31	1.13
Cumulative %		43.46	51.95	58.88	65.23	69.84	73.80	77.45	80.59

4.5 NORMALITY TEST REPORT

The normality tests, namely the Kolmogorov-Smirnov and Shapiro-Wilk tests, were conducted to assess the distributional characteristics of the study's variables. The Kolmogorov-Smirnov test indicated that the data significantly deviated from a normal distribution ($p < 0.05$). Similarly, the Shapiro-Wilk test

supported this finding, revealing a departure from normality in the dataset ($p < 0.05$). The normality test report for the dataset revealed a departure from the assumption of normal distribution, indicating that the data does not follow a normal pattern (see Table 4.12). This departure from normality is a common occurrence in real-world datasets and may arise due to various factors. Given the non-normal distribution of the data, the study will employ non-parametric statistical tests, which are robust against the assumption of normality. Non-parametric tests do not rely on the assumption of a normal distribution and are therefore suitable for analysing data that deviates from normality. This approach ensures the reliability of the statistical analyses and enhances the validity of the study's findings, providing a robust methodology for investigating the research questions at hand.

Table 4.12: Normality Analysis

Constructs	Tests of Normality						
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Relative Advantage	RA1	.221	770	.000	.895	770	.000
	RA2	.284	770	.000	.850	770	.000
	RA3	.184	770	.000	.893	770	.000
	RA4	.217	770	.000	.893	770	.000
	RA5	.275	770	.000	.861	770	.000
	RA6	.181	770	.000	.892	770	.000
	RA7	.205	770	.000	.893	770	.000
	RA8	.201	770	.000	.867	770	.000
Complexity	Com1	.300	770	.000	.835	770	.000
	Com2	.204	770	.000	.870	770	.000
	Com3	.214	770	.000	.890	770	.000
	Com4	.191	770	.000	.874	770	.000
Observability	Observ 1	.198	770	.000	.892	770	.000
	Observ 2	.207	770	.000	.867	770	.000
	Observ 3	.186	770	.000	.908	770	.000
	Observ 4	.195	770	.000	.883	770	.000
	Observ 5	.207	770	.000	.890	770	.000

	Observ 6	.199	770	.000	.877	770	.000
Perceived Usefulness	PUse1	.207	770	.000	.882	770	.000
	PUse2	.208	770	.000	.886	770	.000
	PUse3	.222	770	.000	.879	770	.000
	PUse4	.207	770	.000	.888	770	.000
Ease of Use	EOU1	.201	770	.000	.883	770	.000
	EOU2	.194	770	.000	.887	770	.000
	EOU3	.287	770	.000	.826	770	.000
	EOU4	.196	770	.000	.884	770	.000
Triability	TRI1	.207	770	.000	.889	770	.000
	TRI2	.187	770	.000	.886	770	.000
	TRI3	.218	770	.000	.901	770	.000
Compatibility	Compat 1	.322	770	.000	.810	770	.000
	Compat 2	.181	770	.000	.880	770	.000
	Compat 3	.270	770	.000	.850	770	.000
	Compat 4	.220	770	.000	.852	770	.000
User Satisfaction	Sat1	.298	770	.000	.820	770	.000
	Sat2	.187	770	.000	.892	770	.000
	Sat3	.232	770	.000	.885	770	.000
a. Lilliefors Significance Correction							

4.6 STRUCTURAL EQUATION MODELLING ANALYSIS

The researchers chose to employ SmartPLS4.0 software as their tool of choice to execute the intricate process of Partial Least Square Structural Equation Modelling (PLS-SEM) for the thorough analysis and validation of their hypothesized relationships within the dataset. PLS-SEM, categorized as a form of Structural Equation Modelling, was deemed highly suitable for this study due to its adaptability to datasets characterized by non-normal data patterns (Hair et al., 2010); (Hair et al., 2021); (Wong, 2013).

In contrast to traditional methodologies like Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), the superiority of PLS-SEM lies in its heightened interpretability. This methodology facilitates a more straightforward and lucid understanding of the significance associated with each predictor and the intricate nature of their interconnections. Furthermore, the robustness of PLS-SEM becomes apparent when grappling with complex models laden with numerous mediating and moderating effects, a flexibility that sets it apart from other SEMs like CFA and EFA, as underscored by (Dash & Paul, 2021); (Hair et al., 2013); (Hair et al., 2014); (Jha & Dangwal, 2024). This nuanced choice reflects the researchers' commitment to employing a method that not only suits the peculiarities of their dataset but also allows for comprehensive insights and a deeper understanding of the underlying relationships (Fornell & Larcker, 1981); (Hair et al., 2010); (Henseler et al., 2015)

4.6.1 MEASUREMENT MODEL ANALYSIS

Prior to engaging in PLS-SEM, the dataset underwent a comprehensive preprocessing phase, marked by a thorough examination of missing data, a stringent evaluation of reliability and validity, and a meticulous assessment for multicollinearity. The dataset, initially comprising 750 collected responses, was refined to a dataset of 684 respondents, with 66 responses excluded from further analysis due to adherence to a predetermined criterion that involved eliminating responses with more than 15% missing values. This rigorous approach, in accordance with established practices found in studies by (R. R. Ahmed et al.,

2021) (Jha & Dangwal, 2024), underscores a commitment to data quality and integrity. The resulting dataset of 684 responses forms a robust foundation for the subsequent hypothesis testing phase, ensuring the reliability and credibility of the analytical framework.

A systematic two-step procedure using SmartPLS4.0 was employed for the analysis. Initially, a thorough evaluation of the measurement model was conducted. This step was crucial to ensure that only constructs with sufficient reliability and validity were included in the structural path model. Rigorous assessment of the measurement model is essential as it forms the basis for the credibility and accuracy of the subsequent structural path model. This meticulous approach enhances the robustness of the analytical framework, ensuring the structural model is built on a foundation of reliable and valid constructs.

4.6.2 FACTOR LOADING

During the initial phase of the Measurement Model Analysis, a meticulous evaluation was conducted to guarantee the inclusion of only those constructs that demonstrated satisfactory levels of reliability and validity in the subsequent structural path model. Since all the items of the scale displayed factor loadings above the recommended threshold value of 0.60 (Dash & Paul, 2021); (Hair et al., 2010). Consequently, no item was excluded from further analysis. This discerning approach aims to uphold the robustness and accuracy of the ensuing analytical framework.

Table 4.13: Factor Loadings

	Com	Compat	EOU	Observ	PUse	RA	Sat	TRI
Com1	0.927							
Com2	0.923							
Com3	0.892							
Com4	0.908							
Compat1		0.950						

Compat2		0.930						
Compat3		0.940						
Compat4		0.927						
EOU1			0.916					
EOU2			0.922					
EOU3			0.876					
EOU4			0.901					
Observ1				0.864				
Observ2				0.852				
Observ3				0.862				
Observ4				0.862				
Observ5				0.770				
Observ6				0.803				
PUse1					0.838			
PUse2					0.890			
PUse3					0.885			
PUse4					0.898			
RA1						0.898		
RA2						0.830		
RA3						0.808		
RA4						0.888		
RA5						0.888		
RA6						0.802		
RA7						0.884		
RA8						0.876		
Sat1							0.920	

Sat2							0.934	
Sat3							0.896	
TRI1								0.937
TRI2								0.941
TRI3								0.950

4.6.3 RELIABILITY ANALYSIS

To ascertain the reliability of the adapted measures, a critical evaluation was conducted using Cronbach's alpha, a widely recognized metric for assessing internal consistency (Hair et al., 2013); (Nunnally, 1978). The computed values, ranging from 0.901 to 0.953, consistently exceeded the conventional threshold of 0.70 (see Table 4.14), as recommended by scholars like Hair et al. (2011) and Nunnally (1978). This robust range of alpha values affirms the internal consistency of the constructs under consideration, instilling confidence in the reliability of the measurement instruments.

Additionally, the examination extended to composite reliability coefficients (ρ_c) for the constructs. Composite reliability (ρ_c) is preferred in structural equation modelling for reliability analysis as it accommodates non-equivalence of factor loadings among indicators, providing a more accurate estimate of reliability, particularly in multidimensional models (Henseler et al., 2009); (Henseler & Sarstedt, 2013). The obtained coefficients, ranging from 0.931 to 0.966, surpassed the acceptable threshold of 0.60 (Fornell & Larcker, 1981; Hair Jr et al., 2021). This crucial analysis provides further assurance that each latent construct within the model exhibits commendable composite reliability. These comprehensive evaluations, detailed in Table 4.14 and visually represented in Figure 4.9, underscore the stability and trustworthiness of the latent constructs, laying a solid foundation for subsequent structural analyses.

Table 4.14: Reliability Analysis

Reliability Analysis		
	Cronbach's alpha	Composite reliability (rho_c)
Com	0.933	0.952
Compat	0.953	0.966
EOU	0.926	0.947
Observ	0.914	0.933
PUse	0.901	0.931
RA	0.950	0.958
Sat	0.905	0.941
TRI	0.938	0.960

4.6.4 VALIDITY ANALYSIS

Having established the reliability of the constructs, the subsequent step focused on examining their validity. In this section, both Convergent and Discriminant validity has been tested to ensure the validity of constructs. Convergent validity, in this context, ensures that the indicators of a particular construct measure the same underlying concept and are appropriately related. It serves as a crucial element in validating the accuracy and coherence of the measurement model within the structural equation modelling framework (Henseler et al., 2009); (Henseler & Sarstedt, 2013). In terms of convergent validity, the scrutiny of Average Variance Explained (AVE) disclosed values ranging from 0.740 to 0.889 (exhibited in Table 4.15), exceeding the recommended threshold of 0.5 (Hair et al., 2010). This suggests a commendable level of convergent validity, indicating that each latent variable effectively elucidates more than half of the observed variance in its associated indicators.

Table 4.15: Convergent Validity

Convergent Validity	
	Average variance extracted (AVE)
Com	0.832
Compat	0.878
EOU	0.817
Observ	0.699
PUse	0.771
RA	0.740
Sat	0.841
TRI	0.889

Discriminant validity in PLS-SEM ensures that a reflective construct has a stronger relationship with its own indicators than with other constructs in the model (Hair et al., 2013). This can be assessed using two main criteria: the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio of correlations. The Fornell-Larcker criterion involves comparing the square root of the average variance extracted (AVE) of latent variables to the correlation values of constructs. If the square root of AVE, highlighted in bold and displayed diagonally in the correlation matrix, is greater than the corresponding latent variable correlations, there are no discriminant validity issues (Fornell & Larcker, 1981). Additionally, the HTMT criterion, proposed by (Henseler et al., 2015) assesses discriminant validity through the multitrait-multimethod matrix, where an HTMT value below 0.9 indicates sufficient discriminant validity. Both criteria were applied, and results confirmed that all constructs-maintained discriminant validity, as the square root of AVE values surpassed their respective correlations, and HTMT ratios were below 0.9.

Table 4.16: HTMT (Heterotrait-Monotrait) Ratio

	Com	Compat	EOU	Observ	PUse	RA	Sat	TRI
Com								
Compat	0.477							
EOU	0.428	0.417						
Observ	0.393	0.508	0.573					
PUse	0.507	0.559	0.586	0.574				
RA	0.513	0.492	0.414	0.684	0.467			
Sat	0.261	0.518	0.371	0.467	0.483	0.513		
TRI	0.445	0.524	0.499	0.557	0.574	0.611	0.480	

Table 4.17: Fornell Larcker Criterion

	Com	Compat	EOU	Observ	PUse	RA	Sat	TRI
Com	0.912							
Compat	0.449	0.937						
EOU	0.400	0.391	0.904					
Observ	0.363	0.473	0.536	0.836				
PUse	0.464	0.523	0.543	0.529	0.878			
RA	0.482	0.471	0.398	0.640	0.443	0.860		
Sat	0.239	0.482	0.343	0.426	0.441	0.477	0.917	
TRI	0.417	0.495	0.470	0.517	0.533	0.580	0.441	0.943

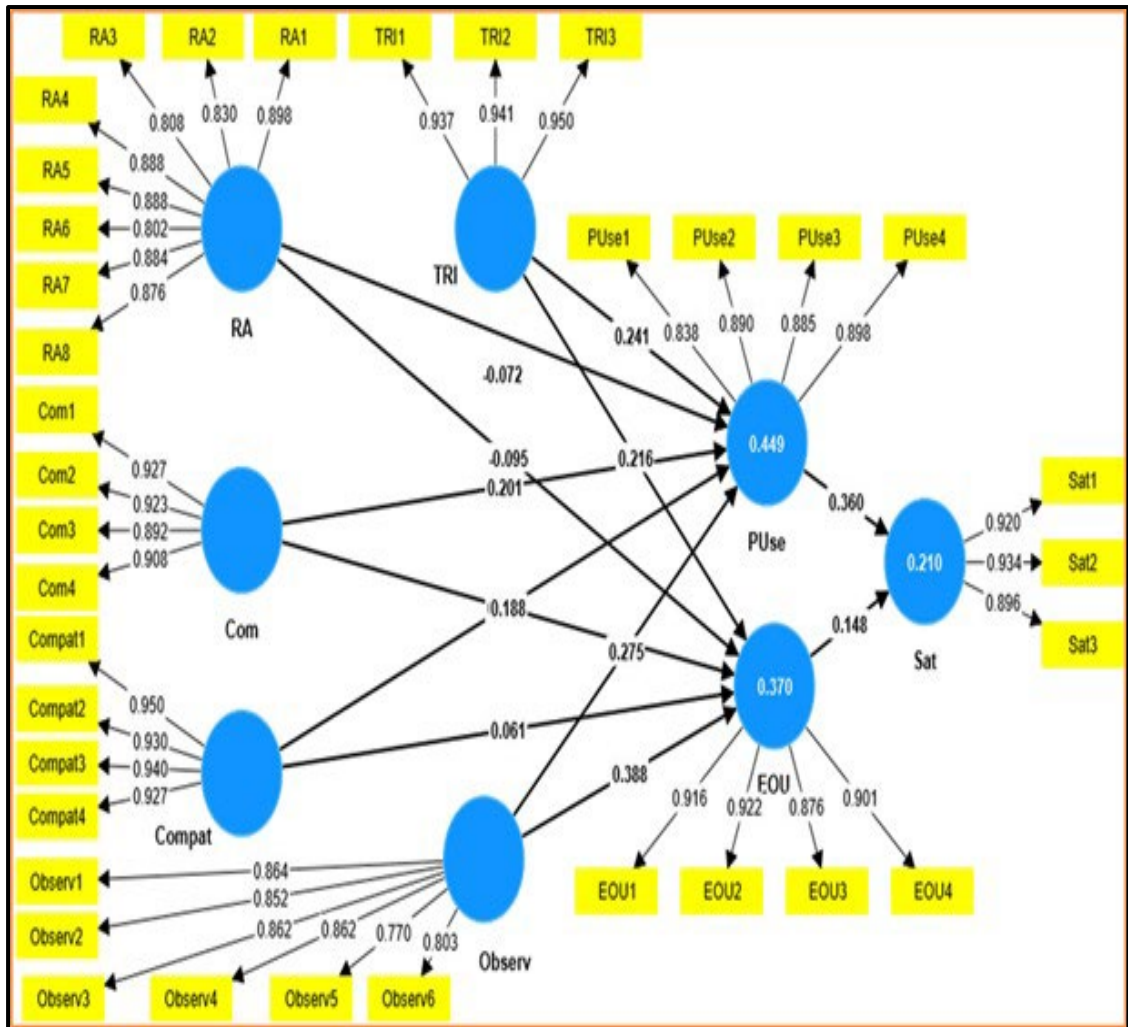


FIGURE 4.9: MEASUREMENT MODEL

4.7 STRUCTURAL MODEL ANALYSIS

Following a thorough evaluation of the measurement model, the next step in assessing PLS-SEM results is to examine the structural model. Key evaluation criteria include the coefficient of determination (R²), the Q² measure from blindfolding cross-validation, and the statistical significance of the path coefficients. Additionally, researchers should assess the model's predictive accuracy beyond the sample using the PLS-predict procedure. This comprehensive assessment ensures a thorough understanding of the model's explanatory power, predictive capability, and the relevance of the path coefficients, thereby enhancing the robustness and applicability of the structural equation model (Hair et al., 2014); (Henseler et al., 2015)

4.7.1 MULTI COLLINEARITY ANALYSIS

The coefficients in the structural model, representing the associations between the constructs, are determined through the estimation of a series of regression equations. Before delving into the assessment of these relationships, it is imperative to scrutinize collinearity to ensure its absence, preventing any bias in the regression outcomes. This process, akin to evaluating formative measurement models, involves calculating Variance Inflation Factor (VIF) values using the latent variable scores of predictor constructs in a partial regression. In this study, all VIF values for the items were found to be below 3.3, adhering to the recommended threshold (Hair et al., 2014), affirming the absence of collinearity issues (see Table 4.18). This meticulous examination ensures the integrity and reliability of the structural model coefficients, providing a robust foundation for the subsequent analyses and interpretations.

Table 4.18: VIF Statistics

	VIF
Com -> EOU	1.439
Com -> PUse	1.439
Compat -> EOU	1.569
Compat -> PUse	1.569
EOU -> Sat	1.418
Observ -> EOU	1.863
Observ -> PUse	1.863
PUse -> Sat	1.418
RA -> EOU	2.143
RA -> PUse	2.143
TRI -> EOU	1.736
TRI -> PUse	1.736

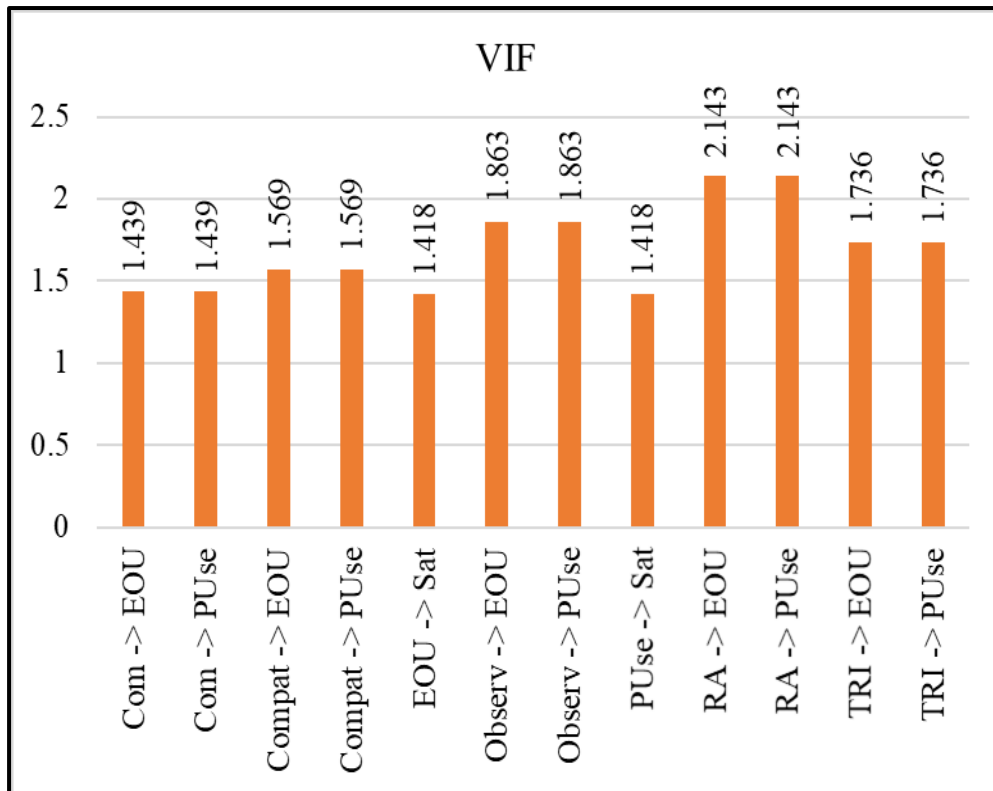


FIGURE 4.10 VIF

4.7.2 COEFFICIENT OF DETERMINANT (R²) ANALYSIS

The coefficient of determination (R²) serves as a crucial metric, capturing the extent of variance explained in each of the endogenous constructs and thus representing the model's explanatory prowess. This parameter is also synonymous with in-sample predictive power (Gefen et al., 2011). Spanning from 0 to 1, higher R² values signify a more robust explanatory capability. Established benchmarks propose R² value to be greater than 0.20 for robust model, whereas a value of 0.50 represent moderate and value above 0.75 represents substantial effect (Hair et al., 2013); (Henseler et al., 2015). In this study, the value for R² ranges from 0.210 to 0.449 (Table 4.19); reflecting a weak to moderate predictive power of the model, aligning with established guidelines. The R² measure signifies the proportion of variance in the endogenous variable explained by exogenous variables, crucial for understanding the overall predictive strength of the model.

Table 4.19: R2 Statistics

	R-square	R-square adjusted
EOU	0.370	0.366
PUse	0.449	0.445
Sat	0.210	0.207

4.7.3 IN-SAMPLE PREDICTIVE POWER ANALYSIS (Q2) ANALYSIS

To gauge the predictive accuracy of the PLS path model, an additional measure, Q2, is employed (Geisser, 1974); (Stone, 1974). This metric is derived from a blindfolding procedure, systematically omitting individual points from the data matrix, replacing the omitted points with the mean, and then estimating the model parameters (Hair et al., 2014). Conventionally, Q2 values exceeding 0, 0.25, and 0.50 signify small, medium, and large predictive relevance of the PLS-path model. In the context of the present study, the Q2 values are ranging from 0.212 to 0.405. These values indicate a small to medium level of predictive relevance for the model, emphasizing its efficacy in anticipating outcomes.

Table 4.20: Q2 Statistics

	Q-square
EOU	0.330
PUse	0.405
Sat	0.212

4.7.4 RELATIONSHIP TESTING

Following this, an examination of the path coefficient within the structural model was undertaken to determine the statistical significance of the proposed relationship (Jha et al., 2024). To rigorously test the hypotheses, a bootstrapping procedure was employed, encompassing 5000 bootstrap samples. This

resampling technique, conducted without sign changes, provided robust and reliable estimates, accompanied by 95% bias-corrected confidence intervals, ensuring the validity and precision of the results.

Factors affecting TAM (Technological Acceptance Model)

Hypothesis 1 (H1): Hypothesis 1 posited that Trialability (TRI) would have a significantly positive impact on Perceived Usefulness (PUse). The obtained result ($\beta = 0.241$, $t = 3.115$, $p = 0.002$) reveals a robust and statistically significant positive association between TRI and PUse, thereby providing substantial support for Hypothesis 1.

Hypothesis 2 (H2): Hypothesis 2 proposed that Relative Advantage (RA) would positively influence Perceived Usefulness (PUse). The result ($\beta = -0.072$, $t = 0.953$, $p = 0.340$) shows a negative association that is not statistically significant, hence Hypothesis 2 is not supported.

Hypothesis 3 (H3): Hypothesis 3 suggested that Complexity (Com) would positively impact Perceived Usefulness (PUse). The findings ($\beta = 0.201$, $t = 2.680$, $p = 0.007$) indicate a significant positive relationship, providing strong support for Hypothesis 3.

Hypothesis 4 (H4): Hypothesis 4 posited that Compatibility (Compat) would have a significantly positive effect on Perceived Usefulness (PUse). The result ($\beta = 0.217$, $t = 2.356$, $p = 0.018$) confirms a statistically significant positive impact, supporting Hypothesis 4.

Hypothesis 5 (H5): Hypothesis 5 proposed that Observability (Observ) would positively influence Perceived Usefulness (PUse). The result ($\beta = 0.275$, $t = 2.873$, $p = 0.004$) reveals a significant positive relationship, thereby supporting Hypothesis 5.

Hypothesis 6 (H6): Hypothesis 6 posited that Trialability (TRI) would positively impact Ease of Use (EOU). The findings ($\beta = 0.216$, $t = 3.317$, $p = 0.001$) show a robust and statistically significant positive association, thus supporting Hypothesis 6.

Hypothesis 7 (H7): Hypothesis 7 suggested that Relative Advantage (RA) would positively influence Ease of Use (EOU). The result ($\beta = -0.095$, $t = 1.243$, $p = 0.214$) indicates a negative but not statistically significant association, thus Hypothesis 7 is not supported.

Hypothesis 8 (H8): Hypothesis 8 proposed that Complexity (Com) would have a significantly positive impact on Ease of Use (EOU). The findings ($\beta = 0.188$, $t = 2.519$, $p = 0.012$) confirm a significant positive relationship, supporting Hypothesis 8.

Hypothesis 9 (H9): Hypothesis 9 posited that Compatibility (Compat) would positively influence Ease of Use (EOU). The result ($\beta = 0.061$, $t = 0.738$, $p = 0.460$) shows a positive but not statistically significant association, hence Hypothesis 9 is not supported.

Hypothesis 10 (H10): Hypothesis 10 suggested that Observability (Observ) would positively impact Ease of Use (EOU). The findings ($\beta = 0.388$, $t = 4.613$, $p = 0.000$) reveal a strong and statistically significant positive relationship, thereby providing substantial support for Hypothesis 10. The detailed analysis is provided in Table 4.21.

Table 4.21: Results of Path Analysis

Hypothesis	Relationship	β - value	Standard deviation (STDEV)	t-value	P-value
H1	TRI -> PUse	0.241	0.077	3.115	0.002
H2	RA -> PUse	-0.072	0.075	0.953	0.340
H3	Com -> PUse	0.201	0.075	2.680	0.007
H4	Compat -> PUse	0.217	0.092	2.356	0.018
H5	Observ -> PUse	0.275	0.096	2.873	0.004
H6	TRI -> EOU	0.216	0.065	3.317	0.001
H7	RA -> EOU	-0.095	0.076	1.243	0.214
H8	Com -> EOU	0.188	0.074	2.519	0.012
H9	Compat -> EOU	0.061	0.083	0.738	0.460
H10	Observ -> EOU	0.388	0.084	4.613	0.000
H11	PUse -> Sat	0.360	0.080	4.529	0.000
H12	EOU -> Sat	0.148	0.072	2.038	0.042

Hypothesis 11 (H11): Hypothesis 11 posited that Perceived Usefulness (PUse) would have a significantly positive impact on Satisfaction (Sat). The obtained result ($\beta = 0.360$, $t = 4.529$, $p = 0.000$) reveals a robust and statistically significant positive association between PUse and Sat, thereby providing substantial support for Hypothesis 11.

Hypothesis 12 (H12): Hypothesis 12 proposed that Ease of Use (EOU) would positively influence Satisfaction (Sat). The findings ($\beta = 0.148$, $t = 2.038$, $p = 0.042$) indicate a statistically significant positive relationship, thus supporting Hypothesis 12. (See table 4.22).

Table 4.22: Results of Path Analysis

Hypothesis	Relationship	β - value	Standard deviation (STDEV)	t-value	P-value
H11	PUse -> Sat	0.360	0.080	4.529	0.000
H12	EOU -> Sat	0.148	0.072	2.038	0.042

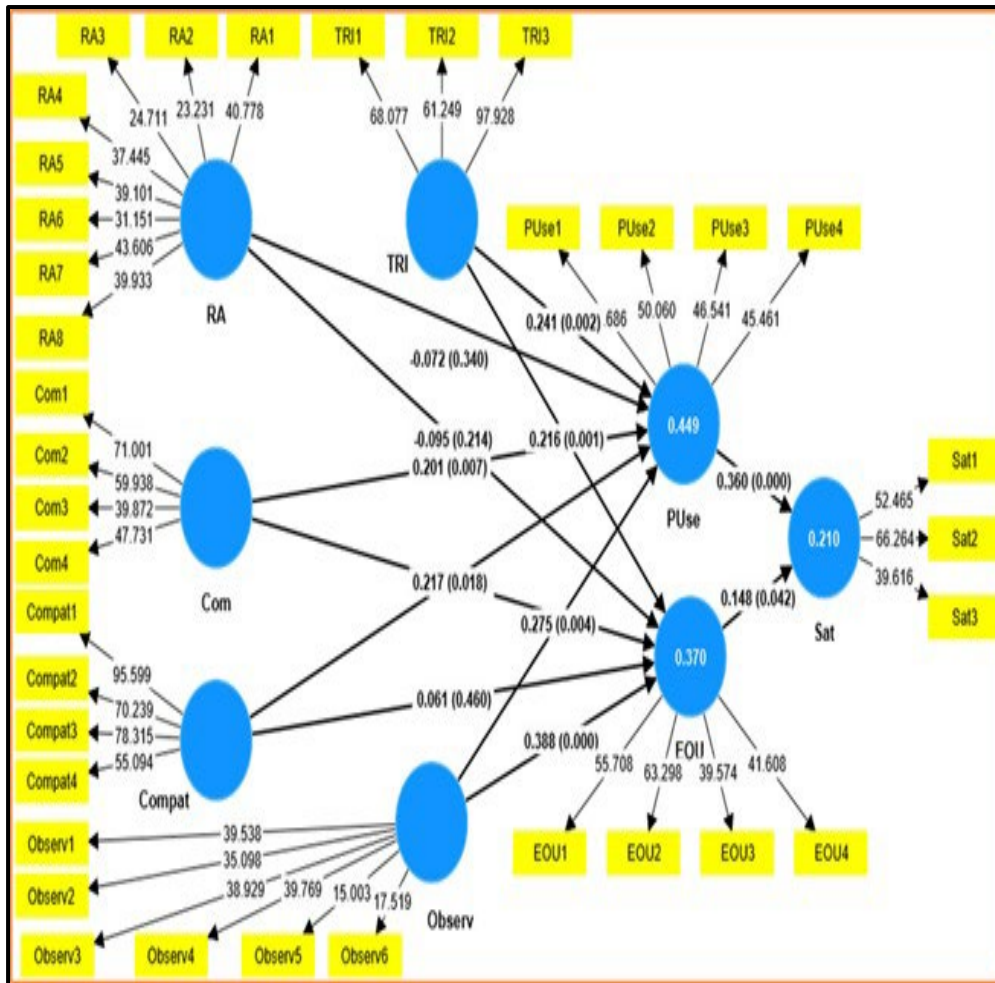


FIGURE 4.11: BOOTSTRAPPING RESULTS

4.8 ANOVA RESULT

In statistical analysis, data distributions are ideally normal and the population homogenous. However, real-world data often deviates from these assumptions, necessitating alternative methods for analysis. Nonparametric tests are valuable tools in such scenarios as they do not rely on specific distributional assumptions, earning them the label "distribution-free tests."

Given that our study data does not follow a normal distribution, we employed nonparametric tests for our analysis. Specifically, we used the Mann-Whitney U Test, an alternative to the Independent Samples t-test, to examine gender differences among respondents. Additionally, we utilized the Kruskal-Wallis Test, which serves as an alternative to ANOVA, to analyse variations in age, marital status, educational status, occupation and income level of the

respondents. These methods allowed us to appropriately handle the complexities of our data and draw meaningful insights.

4.8.1. GENDER OF RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS.

To evaluate the significant difference between male and female respondents for their user satisfaction of mobile payment system, the Mann-Whitney U test has been utilised.

For user satisfaction of mobile payment system, the tests revealed insignificant differences in the user satisfaction of mobile payment system concerning males (Median = 4, n = 448) and females (Median = 4, n = 236), $U = 51917.50$, $z = 0.539$, $p = 0.590$, $r = 0.021$ (small effect size). Hence, the hypothesis (there is a significant difference between males and females in their satisfaction of mobile payment system) is not supported.

Table 4.23: Gender Analytical Results

<i>Gender</i>	<i>N</i>	<i>Mann-Whitney U</i>	<i>Significance</i>	<i>Decision</i>
Male	448	51917.50	0.590*	Retain the null hypothesis
Female	236			

*Significance level is 0.05

4.8.2 AGE OF RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS

To evaluate significant differences in user Satisfaction of mobile payment system across different levels of age of the respondents, the independent sample Kruskal Wallis Test has been utilised.

For user satisfaction of mobile payment system, the tests revealed significant differences (Asymp. Sig = 0.030) for the six age levels (16 to 25 years, n = 100; 26 to 35 years, n = 309; 36 to 45 years, n = 137; 46 to 55 years, n = 80; 56 to 65 years, n = 54; above 65 years, n = 4). Hence, the hypothesis (there is a significant difference across different age levels of respondents for their Satisfaction of mobile payment system) is supported.

Further, for post-hoc analysis the pair-wise comparisons was conducted to assess the particular age level of the respondents which highlights significant differences with their use satisfaction of mobile payment system; the findings demonstrate that the following two age levels- 55 to 65 years with 25 to 35 years (p-value = 0.013) and 55 to 65 years with 36 to 45 years (p-value = 0.025) show significant results (p-value < 0.05).

Table 4.24: Age level Analytical Results

<i>Age level</i>	<i>N</i>	<i>Kruskal-Wallis H</i>	<i>Asymp. Significance</i>	<i>Decision</i>
16 to 25 years	448	12.373	0.030*	Reject the null hypothesis
26 to 35 years	236			
36 to 45 years	137			
46 to 55 years	80			
56 to 65 years	54			
Above 65 years	4			

*Significance level is 0.05

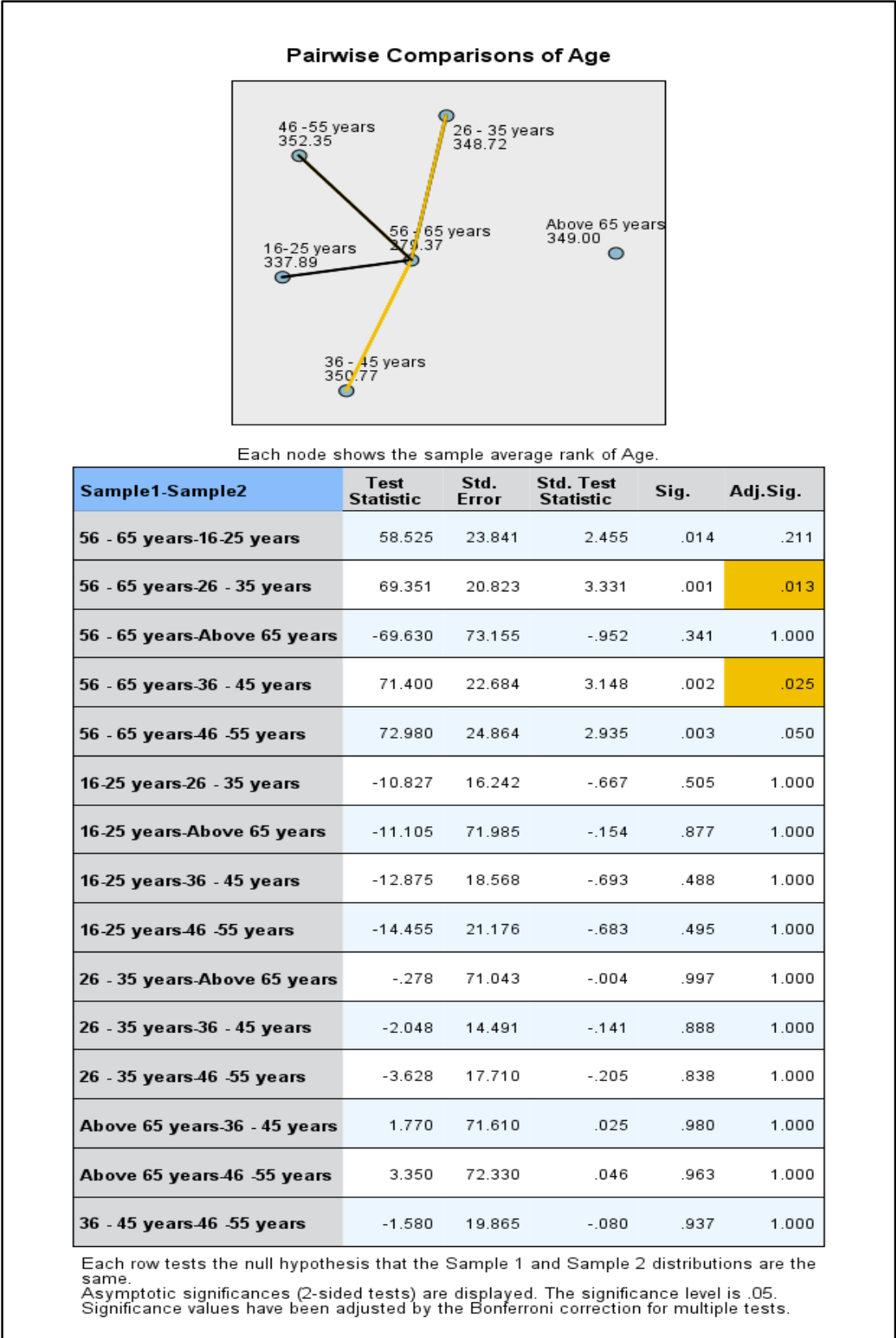


FIGURE 4.12: PAIRWISE COMPARISON OF AGE LEVEL

4.8.3 MARITAL STATUS OF RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS

To evaluate significant differences in user Satisfaction of mobile payment system across different marital status of the respondents, the independent sample Kruskal Wallis Test has been utilised.

The tests revealed insignificant differences (Asymp. Sig = 0.381) for the three levels (single, n = 192; married, n = 463; divorced/widowed/separated, n = 29). Hence, the hypothesis (there is a significant difference across different marital status of respondents for their satisfaction of mobile payment system) is not supported.

Table 4.25: Marital Status Analytical Results

<i>Age level</i>	<i>N</i>	<i>Kruskal-Wallis H</i>	<i>Asymp. Significance</i>	<i>Decision</i>
Single	192	12.373	0.030*	Retain the null hypothesis
Married	436			
Divorced/Widowed/ Separated	29			

*Significance level is 0.05

4.8.4 EDUCATIONAL LEVEL OF RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS

To evaluate significant differences in user satisfaction of mobile payment system across different educational levels of the respondents, the independent sample Kruskal Wallis Test has been utilised.

The tests revealed significant differences (Asymp. Sig = 0.006) for the five educational levels (Higher secondary and below, n = 74; Under graduation, n = 343; Postgraduation, n = 242; Chartered Accountant, n = 19; Ph.D. n = 6). Hence, the hypothesis (there is a significant difference across different educational levels of respondents for their use satisfaction of mobile payment system) is supported.

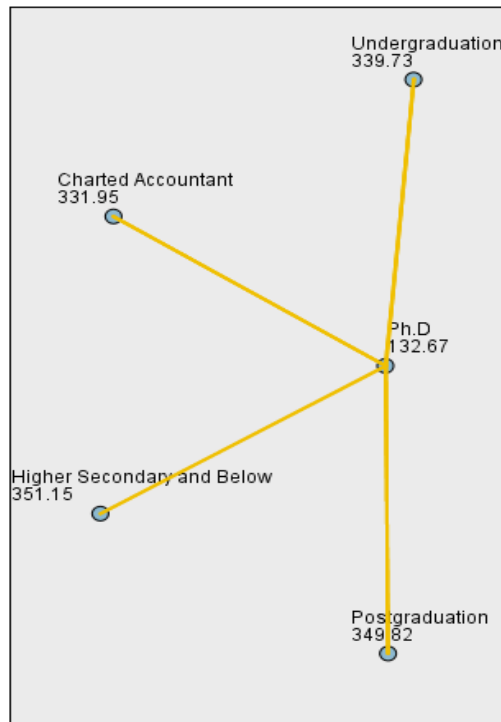
Further, for post-hoc analysis the pair-wise comparisons was conducted to assess the particular educational level of the respondents which highlights significant differences with their use satisfaction of mobile payment system; the findings demonstrate that the following two educational levels- Ph.D. with Chartered Accountant (p-value = 0.026), Ph.D. with Undergraduation (p-value = 0.004), Ph.D. with Postgraduation (p-value = 0.002) and Ph.D. with Higher secondary & below (p-value = 0.003) show significant results (p-value < 0.05).

Table 4.26: Educational Level Analytical Results

<i>Age level</i>	<i>N</i>	<i>Kruskal-Wallis H</i>	<i>Asymp. Significance</i>	<i>Decision</i>
Higher secondary and below	74	14.422	0.006*	Reject the null hypothesis
Undergraduation	343			
Postgraduation	242			
Chartered Accountant	19			
Ph.D.	6			

*Significance level is 0.05

Pairwise Comparisons of Edu



Each node shows the sample average rank of Edu.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Ph.D-Chartered Accountant	199.281	66.111	3.014	.003	.026
Ph.D-Undergraduation	207.059	58.136	3.562	.000	.004
Ph.D-Postgraduation	217.152	58.344	3.722	.000	.002
Ph.D-Higher Secondary and Below	218.482	59.925	3.646	.000	.003
Chartered Accountant-Undergraduation	7.779	33.273	.234	.815	1.000
Chartered Accountant-Postgraduation	17.871	33.635	.531	.595	1.000
Chartered Accountant-Higher Secondary and Below	19.201	36.308	.529	.597	1.000
Undergraduation-Postgraduation	-10.092	11.852	-.852	.394	1.000
Undergraduation-Higher Secondary and Below	11.423	18.095	.631	.528	1.000
Postgraduation-Higher Secondary and Below	1.330	18.753	.071	.943	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05. Significance values have been adjusted by the Bonferroni correction for multiple tests.

FIGURE 4.13: PAIRWISE COMPARISON OF EDUCATIONAL LEVEL

4.8.5 OCCUPATION OF RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS

To evaluate significant differences in User Satisfaction of mobile payment system users across different occupation categories of the respondents, the independent sample Kruskal Wallis Test has been utilised.

The tests revealed significant differences (Asymp. Sig = 0.002) for the five occupation categories (Student, n = 107; Not employed, n = 64; Private business/job, n = 404; Government/Public service, n = 72 and Corporate Professional, n = 37). Hence, the hypothesis (there is a significant difference across different occupation categories of respondents for their user satisfaction of mobile payment system) is supported.

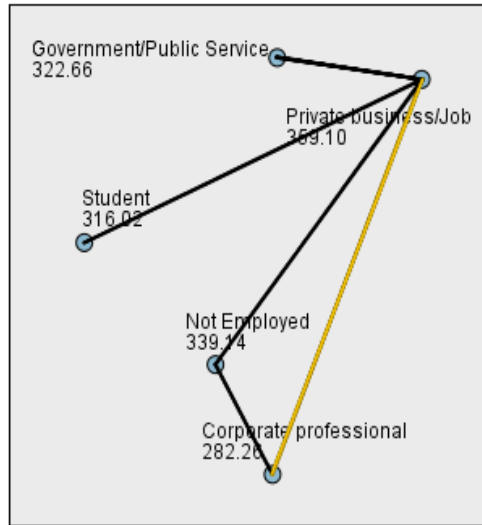
Further, for post-hoc analysis the pair-wise comparisons was conducted to assess the particular occupational level of the respondents which highlights significant differences with their use satisfaction of mobile payment system; the findings demonstrate that the following occupational level- Corporate professional with private business/job (p-value = 0.015) show significant results (p-value < 0.05).

Table 4.27: Occupational Level Analytical Results

<i>Age level</i>	<i>N</i>	<i>Kruskal-Wallis H</i>	<i>Asymp. Significance</i>	<i>Decision</i>
Student	107	17.544	0.002*	Reject the null hypothesis
Not employed	64			
Private business/job	404			
Government/ Public service	72			
Corporate Professional	37			

*Significance level is 0.05

Pairwise Comparisons of Occ



Each node shows the sample average rank of Occ.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Corporate professional-Student	33.767	26.924	1.254	.210	1.000
Corporate professional-Government/Public Service	40.403	28.556	1.415	.157	1.000
Corporate professional-Not Employed	56.884	29.156	1.951	.051	.511
Corporate professional-Private business/Job	76.841	24.248	3.169	.002	.015
Student-Government/Public Service	-6.636	21.519	-.308	.758	1.000
Student-Not Employed	-23.117	22.309	-1.036	.300	1.000
Student-Private business/Job	-43.074	15.349	-2.806	.005	.050
Government/Public Service-Not Employed	16.481	24.253	.680	.497	1.000
Government/Public Service-Private business/Job	36.438	18.059	2.018	.044	.436
Not Employed-Private business/Job	-19.957	18.993	-1.051	.293	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05. Significance values have been adjusted by the Bonferroni correction for multiple tests.

FIGURE 4.14: PAIRWISE COMPARISON OF OCCUPATIONAL LEVEL

4.8.6. INCOME OF RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS

To evaluate significant differences in User Satisfaction of mobile payment system users across different income levels of the respondents, the independent sample Kruskal Wallis Test has been utilised.

The tests revealed insignificant differences (Asymp. Sig = 0.161) for the five levels of income levels (<1,00,000, n = 140; 1,00,000 to 2,00,000, n = 239; 2,00,000 to 5,00,000, n = 204; 5,00,000 to 10,00,000, n = 67 and >10,00,000, n = 34). Hence, the hypothesis (there is a significant difference across different levels of monthly income for the respondents' Satisfaction of mobile payment system users) is unsupported.

Table 4.28: Income level Analytical Results

<i>Age level</i>	<i>N</i>	<i>Kruskal-Wallis H</i>	<i>Asymp. Significance</i>	<i>Decision</i>
<1,00,000	140	6.561	0.161*	Retain the null hypothesis
1,00,000 to 2,00,000	239			
2,00,000 to 5,00,000	204			
5,00,000 to 10,00,000	67			
>10,00,000	34			

*Significance level is 0.05

4.8.7 DURATION OF USAGE OF MPS BY RESPONDENTS AND USER SATISFACTION OF MOBILE PAYMENT SYSTEM USERS

To assess the association between (or to examine difference) between duration of payment apps used and satisfaction of mobile payment system users, the independent sample Kruskal Wallis Test has been conducted.

The finding revealed an insignificant difference between all 3 levels of duration of mobile payment app used (less than one year, n = 118; 1 to 3 year, n = 309; and more than 3 years = 257). Hence, the hypothesis (there is a significant difference across different duration of mobile payment uses and respondents' Satisfaction of mobile payment system users) is unsupported.

Table 4.29: Mobile Payment App Duration Analytical Results

<i>Age level</i>	<i>N</i>	<i>Kruskal-Wallis H</i>	<i>Asymp. Significance</i>	<i>Decision</i>
<1,00,000	118	5.516	0.063	Retain the null hypothesis
1,00,000 to 2,00,000	309			
2,00,000 to 5,00,000	257			

*Significance level is 0.05

4.9 SUMMARY OF CHAPTER

This chapter focuses on data analysis and interpretation, exploring relationships between Perceived Usefulness, Ease of Use, and satisfaction with mobile payment services. The study employed ANOVA to examine demographic influences and Structural Equation Modelling (SEM) for in-depth analysis. Challenges like respondent reluctance led to convenience sampling adjustments. The chapter begins with a demographic overview and applies statistical tests to ensure data integrity. Exploratory Factor Analysis (EFA) condensed variables into manageable factors. Non-parametric tests compensated for data non-normality. SmartPLS facilitated robust PLS-SEM, validating hypotheses and confirming relationships. The findings provide comprehensive insights into factors affecting mobile payment satisfaction, enriching understanding in this field.

CHAPTER – V

DISCUSSION & IMPLICATION

5.1 DISCUSSION

This chapter presents a comprehensive summary of the findings related to the present conceptual framework and the hypothesized relationships. The primary objective is to provide a detailed discussion that not only interprets the data but also connects these findings with existing literature on the diffusion of mobile payments in the Delhi-NCR region. We begin by reviewing the conceptual framework that guided this research, outlining the key variables and their proposed interactions. This framework was designed to explore the factors influencing the adoption and diffusion of mobile payment systems in the Delhi-NCR region. The hypothesized relationships between these variables were tested using empirical data collected through surveys and analysed using statistical methods. The discussion will delve into the interpretation of these findings, providing insights into how each variable and their interactions contribute to the understanding of mobile payment adoption in this specific geographical context. By comparing our results with those of previous studies, we aim to highlight consistencies and discrepancies, thereby situating our findings within the broader academic discourse. Furthermore, we have examined the implications of these findings for existing theories on technology adoption and diffusion of innovations. This includes evaluating how our results support or challenge these theories and what new perspectives they offer. We have also identified the practical implications for stakeholders, including policymakers, businesses, and consumers, highlighting strategies that could facilitate the further adoption of mobile payments in the region.

H1: There is a significant impact of trialability on perceived usefulness of mobile payment system users.

The findings of H1 indicate that trialability has a significant positive impact on the perceived usefulness of payment system users ($\beta = 0.241$, $t = 3.115$, $p = 0.002$). This result suggests that when users have the opportunity to experiment with and try out mobile payment systems, they are more likely to perceive these systems as useful. Several previous studies have highlighted the critical role of

trialability in technology adoption and perceived usefulness: the finding aligned with the Rogers' Diffusion of Innovations Theory, which identified trialability as one of the five key attributes that affect the adoption rate of innovations. He argued that the ability to try an innovation before full-scale adoption reduces uncertainty and allows potential adopters to see the benefits firsthand (P. J. Rogers & Peersman, 2014). Therefore, Rogers' theory, reaffirming that trialability enhances perceived usefulness by allowing users to experience the benefits of mobile payments. Furthermore, a study by (Tan & Teo, 2000) on Internet banking adoption found that trialability significantly influenced perceived usefulness and adoption intention. Their research demonstrated that when users can try out online banking services, they are more likely to appreciate its usefulness and convenience, leading to higher adoption rates. This finding parallels our results, suggesting that similar dynamics are at play in the context of mobile payments. Similarly, (Davis, 1989) examined the factors affecting the adoption of mobile payment systems and identified trialability as a significant predictor of perceived usefulness. Chen's study indicated that when users have hands-on experience with mobile payment applications, they are more likely to recognize their practicality and benefits. The present findings of the research support this conclusion, emphasizing the importance of providing trial opportunities to potential users.

H2: There is a significant impact of Relative Advantage on Perceived Usefulness of mobile payment system users.

The findings indicate that relative advantage does not have a significant impact on the perceived usefulness of mobile payment system users, as evidenced by the statistical results ($\beta = -0.072$, $t = 0.953$, $p = 0.340$). This result suggests that the perceived relative advantage of mobile payment systems over traditional payment methods does not significantly influence users' perceptions of their usefulness. Relative advantage refers to the degree to which an innovation is perceived as being better than the idea it supersedes. In the context of mobile payments, this would imply that users believe mobile payments offer superior benefits compared to traditional payment methods such as cash or credit cards. However, the negative beta coefficient ($\beta = -0.072$) and the non-significant p-

value (0.340) indicate that this perceived relative advantage does not translate into a higher perception of usefulness among users. Rogers posits that relative advantage is a crucial factor in the adoption of innovations (Davis, 1989). Typically, innovations perceived to have significant advantages are adopted more rapidly (E. M. Rogers, 1962). However, our finding contrasts with this aspect of Rogers' theory, suggesting that other factors may be more influential in the context of mobile payments. Furthermore, (Davis, 1989), in his Technology Acceptance Model (TAM), emphasized that perceived usefulness is a critical determinant of technology adoption. While Davis' model does not explicitly focus on relative advantage, subsequent studies incorporating TAM have shown mixed results regarding the impact of relative advantage. For instance, a study by (Püschel et al., 2010) found that while relative advantage influenced mobile banking adoption, its impact on perceived usefulness was not always significant. Similarly, (Schierz et al., 2010) explored factors affecting mobile payment adoption and found that relative advantage was a significant predictor of adoption intention but had a weaker impact on perceived usefulness. This aligns with our finding, suggesting that users may recognize the benefits of mobile payments but do not necessarily equate these benefits with increased usefulness.

Several factors may explain why relative advantage does not significantly impact perceived usefulness in this study. Firstly, mobile payment systems may have matured to a point where their advantages are taken for granted, diminishing the impact of perceived novelty. Secondly, other factors like ease of use, security, and compatibility might be more critical in shaping perceived usefulness, with users prioritizing these attributes over relative advantage. Additionally, high familiarity with mobile payments in the Delhi-NCR region means users may rely more on their daily practical experiences rather than comparative advantages. Lastly, cultural and contextual factors, such as social influence and normative beliefs, might overshadow the perceived relative advantage, making it less significant in determining perceived usefulness.

H3: There is a significant impact of Complexity on Perceived Usefulness of mobile payment system users.

The findings indicate that complexity has a significant positive impact on the perceived usefulness of mobile payment system users ($\beta = 0.201$, $t = 2.680$, $p = 0.007$). This result suggests that the less complex a mobile payment system is perceived to be, the more useful users find it. Here, we will interpret these findings and corroborate them with previous studies. This implies that users prefer mobile payment systems that are straightforward and user-friendly, as these are perceived to be more beneficial in their daily lives. The findings aligned with (Davis, 1989) emphasized the importance of perceived ease of use in his Technology Acceptance Model (TAM). He argued that technologies perceived as easier to use are more likely to be deemed useful. This aligns with present findings, as lower complexity (or higher ease of use) positively influences perceived usefulness. A study by (Kim et al., 2010) on mobile payment adoption found that complexity negatively influenced perceived usefulness and intention to use. Users were more inclined to adopt mobile payment systems that were easy to understand and use. This is consistent with our findings, reinforcing the idea that simplicity drives perceived usefulness. Similarly, (Venkatesh & Davis, 2000), extended the TAM by incorporating social influence and cognitive instrumental processes, further confirming that perceived ease of use (or low complexity) is a significant determinant of perceived usefulness. Our results align with this extended model, indicating that reducing complexity can enhance the perceived benefits of mobile payment systems.

H4: There is a significant impact of Compatibility on Perceived Usefulness of mobile payment system users.

The findings indicate that compatibility has a significant positive impact on the perceived usefulness of mobile payment system users ($\beta = 0.217$, $t = 2.356$, $p = 0.018$). This result suggests that when mobile payment systems are compatible with users' existing values, needs, and past experiences, they are perceived as more useful. Here, we will interpret these findings and corroborate them with

previous studies. This implies that when mobile payment systems integrate seamlessly into users' existing practices and meet their expectations, they are deemed more beneficial and valuable. Rogers identified compatibility as one of the key attributes influencing the adoption of innovations (E. M. Rogers, 2002). He argued that innovations compatible with users' values and experiences are more likely to be adopted. Our findings support this theory, showing that compatibility enhances perceived usefulness, thereby encouraging adoption (P. J. Rogers & Peersman, 2014). A study by (Mallat, 2007) on consumer adoption of mobile payments found that compatibility with existing payment habits and lifestyle significantly influenced perceived usefulness and adoption. This is consistent with present findings, reinforcing the idea that users prefer mobile payment systems that align with their current practices. Similarly (Priya et al., 2018), explored factors affecting the adoption of mobile payment services in India. They found that compatibility significantly influences consumer perceptions of usefulness. Indian consumers perceive mobile payment services as more useful when they align with their existing financial habits and technological preferences. Furthermore, (Chawla & Joshi, 2019) studied the adoption of mobile wallets in India and identified compatibility as a critical factor influencing perceived usefulness. Their research highlighted that Indian consumers value mobile payment solutions that integrate seamlessly with their daily financial practices and preferences. (Shankar & Datta, 2018) study on consumer adoption of mobile payments in India highlighted compatibility as a key determinant of perceived usefulness. Indian consumers are more likely to adopt mobile payment services that are compatible with their lifestyle, ease of use expectations, and trust in the technology.

H5: There is a significant impact of Observability on Perceived Usefulness of mobile payment system users.

The findings reveal a significant positive impact of Observability on the perceived usefulness of mobile payment system users ($\beta = 0.275$, $t = 2.873$, $p = 0.004$). This suggests that when users can observe others successfully using mobile payment systems, they are more likely to perceive these systems as useful. Observability refers to the extent to which the benefits of using a

technology are visible to others. In the context of mobile payments, observability implies that when users witness peers or others using mobile payment systems effectively and efficiently, they are more likely to perceive these systems as beneficial and valuable. The positive beta coefficient ($\beta = 0.275$) and the significant t-value (2.873) with a p-value of 0.004 indicate that higher observability enhances perceived usefulness among users. This underscores the role of social influence and visibility in shaping perceptions of technology usefulness. (Shankar & Datta, 2018) study on mobile payment adoption in India found that observability significantly influences perceived usefulness. Indian consumers who observe peers or influencers using mobile payment systems tend to perceive them as more useful and are more likely to adopt them. This aligns with the present findings, emphasizing the impact of social visibility on perceived utility. (Venkatesh & Davis, 2000), explored the factors influencing technology acceptance and found that observability positively influences perceived usefulness across different technological contexts. Their meta-analysis and subsequent studies corroborate that visibility of technology usage reinforces its perceived benefits. (Yadav et al., 2016) studied mobile commerce adoption and found that observability plays a crucial role in shaping perceived usefulness and adoption intentions. Users who observe others benefiting from mobile commerce services are more likely to perceive them as useful and adopt them themselves. (Vrain et al., 2022), investigated the influence of observability on mobile service adoption and found that visible usage by peers or influencers positively impacts perceived usefulness. This supports our findings across various technological and cultural contexts.

H6: There is a significant impact of Trialability on Ease of Use of mobile payment system users.

The findings indicate a significant positive impact of Trialability on the Ease of Use of mobile payment system users ($\beta = 0.216$, $t = 3.317$, $p = 0.001$). This suggests that when users can easily trial or experiment with a mobile payment system, they perceive it as more user-friendly and easier to use. The positive beta coefficient ($\beta = 0.216$) and the significant t-value (3.317) with a p-value of

0.001 indicate that higher trialability enhances the perceived ease of use among users. This underscores the importance of hands-on experience in shaping perceptions of usability. (Jawad et al., 2022), study on mobile payment adoption in India highlighted that trialability positively influences the perceived ease of use. Indian consumers who had the opportunity to trial mobile payment systems found them easier to use and more convenient in their daily transactions. (Barrett et al., 2015), has explored the role of trialability in technology acceptance and found that hands-on experience significantly enhances perceived ease of use. Users who can experiment with a technology before adoption are more likely to find it intuitive and user-friendly. (Sun & Zhang, 2006), investigated and found that trialability positively impacts the ease-of-use perception. Users who had the chance to trial mobile payment systems reported lower perceived complexity and higher ease of use, leading to increased adoption intentions. Furthermore, (Rokonuzzaman et al., 2020), in his recent study on digital payment adoption in India emphasized the role of trialability in shaping user perceptions. They found that users who could trial digital payment platforms were more likely to perceive them as easy to use and integrated into their daily routines.

H7: There is a significant impact of Relative Advantage on Ease of Use of mobile payment system users.

The findings indicate that Relative Advantage does not have a significant impact on the Ease of Use of mobile payment system users ($\beta = -0.095$, $t = 1.243$, $p = 0.214$). This implies that perceived comparative benefits of using mobile payments do not strongly influence users' perceptions of how easy the system is to use. (M. S. Kumar & Krishnan, 2020), study on mobile payment adoption in India suggested that while Relative Advantage positively influences adoption intentions, its impact on perceived Ease of Use may vary. Indian consumers may prioritize other factors, such as trialability and compatibility, over perceived advantages when assessing usability. Similarly, (Tao & Xu, 2020) meta-analysis on technology acceptance found that while Relative Advantage typically influences adoption decisions, its impact on perceived Ease of Use can be less pronounced. Users may perceive a technology as advantageous but still

find it challenging to use if other usability factors are not adequately addressed. Furthermore, (Dwivedi et al., 2016), In a recent multi-country study on digital technology adoption, Dwivedi et al. explored factors influencing user perceptions. They found that Ease of Use perceptions are influenced more by design simplicity, interface intuitiveness, and user support than by perceived advantages alone. However, the lack of significant impact of Relative Advantage on Ease of Use in this study can be attributed to several factors. Firstly, users may perceive mobile payment systems as inherently complex, regardless of their perceived benefits such as convenience or time-saving features. This perception of complexity could overshadow any positive influence that Relative Advantage might have on Ease-of-Use perceptions, leading users to focus more on the system's overall difficulty rather than its comparative advantages. Secondly, users may prioritize other factors like trialability, compatibility with existing technologies, and security measures when evaluating the ease of using mobile payment systems. These factors are more tangible and directly affect users' daily interactions with the technology, potentially overshadowing the abstract benefits of Relative Advantage. Lastly, Ease of Use is inherently subjective and varies greatly based on individual experiences and expectations with technology. Users' personal interactions and previous encounters with mobile payment systems may heavily influence their perceptions of usability, making generalized perceptions of relative advantage less impactful in determining Ease of Use perceptions. These factors collectively highlight the complex interplay of user perceptions and technological attributes in shaping usability assessments of mobile payment systems.

H8: There is a significant impact of Complexity on Ease of Use of mobile payment system users.

The findings indicate a significant positive impact of Complexity on the Ease of Use of mobile payment system users ($\beta = 0.188$, $t = 2.519$, $p = 0.012$). This suggests that perceived complexity influences users' perceptions of how easy or difficult it is to use mobile payment systems. This underscores the importance of user-friendly design and intuitive interfaces in enhancing usability

perceptions. (Shankar & Datta, 2018), study on mobile payment adoption in India found that perceived complexity negatively influences Ease of Use perceptions. Indian consumers are more likely to adopt mobile payment systems that they perceive as less complex and easier to navigate during transactions. (Aslam et al., 2020), found that mobile commerce adoption across multiple countries highlighted that complexity perceptions strongly impact Ease of Use assessments. Users in diverse cultural contexts tend to prefer simple and straightforward mobile payment interfaces to enhance usability. Furthermore, (Lee et al., 2003), research on technology acceptance emphasized that reducing perceived complexity is crucial for improving usability perceptions. Clear instructions, minimal steps, and intuitive design features enhance the Ease of Use of mobile payment systems.

H9: There is a significant impact of Compatibility on Perceived Usefulness of mobile payment system users.

The findings indicate a significant positive impact of Compatibility on the Perceived Usefulness of mobile payment system users ($\beta = 0.217$, $t = 2.356$, $p = 0.018$). This suggests that when mobile payment systems are compatible with users' existing values, needs, and experiences, they are perceived as more useful. The findings indicate that higher compatibility enhances the perceived usefulness among users. This underscores the importance of integrating new technologies seamlessly into users' existing frameworks and routines. (Chawla & Joshi, 2017), study on mobile wallet adoption in India found that compatibility significantly influences perceived usefulness. Indian consumers are more likely to find mobile payment systems useful when they are compatible with their current financial habits and mobile usage patterns. Similarly, (Liébana-Cabanillas et al., 2020), research on technology acceptance in India highlighted that compatibility with users' existing practices and preferences positively impacts the perceived usefulness of new technologies, including mobile payments. Furthermore, research on mobile payment adoption in various countries found that compatibility with users' lifestyle and technological environment is a crucial determinant of perceived usefulness, leading to higher

adoption rates (Moghavvemi et al., 2021).(Chawla & Joshi, 2021), study on mobile banking adoption in India corroborates the importance of compatibility, showing that when mobile banking services align with users' existing banking habits and technological preferences, they are perceived as more useful.

H10: There is a significant impact of Observability on Perceived Usefulness of mobile payment system users.

The findings indicate a significant positive impact of Observability on the Perceived Usefulness of mobile payment system users ($\beta = 0.275$, $t = 2.873$, $p = 0.004$). This suggests that when the benefits and advantages of mobile payment systems are visible and observable, users are more likely to perceive these systems as useful. The result indicate that higher observability enhances the perceived usefulness among users. This underscores the importance of making the benefits of mobile payment systems visible to potential users to increase their perceived utility. (M. S. Kumar & Krishnan, 2020), study on mobile payment adoption in India found that observability significantly influences perceived usefulness. Indian consumers who can observe the practical benefits and efficiencies of mobile payment systems are more likely to perceive them as useful. Similarly, (Pal et al., 2020),research on digital payment systems in India highlighted that visible benefits, such as faster transactions and rewards, significantly enhance the perceived usefulness of mobile payments among Indian users. (Rogers et al., 2014), In his seminal work on the diffusion of innovations, Rogers emphasized the importance of observability in the adoption process. Visible benefits help potential adopters to recognize the usefulness of an innovation. Furthermore, study on the adoption of mobile banking apps in India corroborates the importance of observability, showing that visible benefits and peer influence significantly enhance perceived usefulness(Chawla & Joshi, 2023).

H11: There is a significant impact of Perceived Usefulness of mobile payment system on user satisfaction of mobile payment system users.

The findings indicate a significant positive impact of Perceived Usefulness on user satisfaction among mobile payment system users ($\beta = 0.360$, $t = 4.529$, $p =$

0.000). This suggests that the more users perceive mobile payment systems as useful, the higher their overall satisfaction with these systems. The findings align with previous study by (K. Gupta & Arora, 2019), study on mobile payment adoption in India, they found that perceived usefulness significantly influences user satisfaction. Indian users who find mobile payment systems useful in their daily transactions report higher levels of satisfaction. Furthermore, research on adoption of digital wallets in India demonstrated that perceived usefulness is a critical determinant of user satisfaction. Users who perceive digital wallets as enhancing their transaction efficiency are more likely to be satisfied (Routray et al., 2019). Similarly, (Bailey & Pearson, 1983), study on user satisfaction with computer systems found that perceived usefulness is a primary factor contributing to overall satisfaction. This relationship has been confirmed in various technological contexts. (Bailey & Pearson, 1983), study on user satisfaction with computer systems found that perceived usefulness is a primary factor contributing to overall satisfaction. This relationship has been confirmed in various technological contexts. (Venkatesh & Davis, 2000), further extended TAM model also confirmed that perceived usefulness significantly affects user satisfaction and intention to use technology.

H12: There is a significant impact of Ease of Use of mobile payment system on user satisfaction of mobile payment system users.

The findings indicate a significant positive impact of Ease of Use on user satisfaction among mobile payment system users ($\beta = 0.148$, $t = 2.038$, $p = 0.042$). This suggests that when users find mobile payment systems easy to use, they are more likely to be satisfied with these systems. (Davis, 1989), In his Technology Acceptance Model (TAM), identified ease of use as a fundamental determinant of user satisfaction and acceptance of new technologies. This model has been validated in various studies across different contexts. (Chung & Kwon, 2009), research on mobile banking services indicated that ease of use is a significant predictor of user satisfaction, as users prefer systems that require minimal effort to navigate and use. Similarly, (Abegao Neto & Figueiredo, 2023), Their study on mobile payment adoption in Brazil highlighted that ease of use positively impacts user satisfaction, corroborating the present findings.

Furthermore,(Chawla & Joshi, 2019), in their research on mobile wallet adoption in India, Chawla and Joshi found that ease of use significantly enhances user satisfaction, aligning with the present study's findings.

H13a: There is a significant impact of different genders on user satisfaction of mobile payment system users.

The Mann-Whitney U Test results indicated that there are insignificant differences in user satisfaction of mobile payment system users between males and females.

The p-value of 0.590 suggests that there is a 59% chance of observing the observed difference between males and females due to random sampling variability. With a significance level commonly set at 0.05, the obtained p-value is higher, indicating that the observed differences are not statistically significant. The small effect size ($r = 0.021$) reinforces this, suggesting a minimal impact even if there were differences.

The findings suggest that gender does not play a significant role in determining user satisfaction of mobile payment systems under study. This lack of significance is supported by both the p-values and the small effect sizes.

Several factors justify these findings. Firstly, modern mobile payment systems are designed to be intuitive and user-friendly for all demographics, with customizable features that cater to individual preferences, minimizing gender-based differences in satisfaction. Secondly, the widespread adoption and high penetration of these systems across various demographics, along with equal access to information and support, lead to similar levels of familiarity and competence among users. Thirdly, both men and women likely perceive the same benefits, such as convenience, speed, efficiency, security, and trust, contributing to comparable satisfaction levels. Additionally, there is a growing trend towards gender equality in technology usage and increased efforts in promoting digital literacy and financial inclusion. Lastly, the large and balanced sample size ensures statistically robust results, with equal medians suggesting uniform satisfaction levels, and the small effect size indicating minimal

practical differences. As technology evolves, satisfaction levels are expected to remain consistent across genders due to these factors.

H13b: There is a significant impact of different age groups on user satisfaction of mobile payment system users.

The significant differences in user satisfaction of mobile payment systems across the different age levels, as revealed by the Kruskal-Wallis Test, can be attributed to several key factors. Younger individuals (16 to 45 years) are generally more familiar with and adaptable to new technologies, having grown up with digital advancements, which enhances their comfort and satisfaction with mobile payment systems. In contrast, older individuals (55 to 65 years) may have had less exposure to digital technologies, finding them less intuitive and harder to use, resulting in lower satisfaction.

Middle-aged groups (25 to 45 years) often have significant professional experience and are comfortable with digital financial services, contributing to higher satisfaction, while older groups may prefer traditional financial methods, affecting their satisfaction with mobile payment systems. Additionally, younger and middle-aged individuals likely perceive greater benefits from the convenience, speed, and efficiency of mobile payment systems and trust their security features, whereas older users might have concerns about security and privacy. Finally, younger individuals, leading fast-paced lifestyles, value the quick transactions mobile payment systems offer, while older users may have established financial habits less dependent on mobile technologies, impacting their satisfaction levels.

The post-hoc analysis further indicates that the significant differences are particularly pronounced between the age groups of 55 to 65 years and the younger age groups (25 to 35 years and 36 to 45 years). This highlights a generational gap in the adoption and satisfaction of mobile payment systems, with older users potentially facing more challenges in adapting to these technologies compared to their younger counterparts.

H13c: There is a significant impact of different marital status on user satisfaction of mobile payment system users.

The insignificant differences in user satisfaction of mobile payment systems across different marital statuses, as revealed by the Kruskal-Wallis Test, can be justified by several key factors: Modern mobile payment systems are designed to be universally user-friendly and intuitive, ensuring similar experiences and satisfaction levels across all demographics. Regardless of marital status, individuals generally have equal access to mobile payment technologies and the internet, fostering equal familiarity and comfort in using these systems. The financial needs and transactions facilitated by mobile payment systems are often similar across different marital statuses, leading to comparable satisfaction levels.

Contemporary society encourages financial management and independence for all individuals, resulting in similar skills and attitudes toward managing finances using mobile payment systems. Additionally, many mobile payment systems offer customizable features that cater to individual preferences, ensuring that users can tailor the system to meet their specific needs. Efforts to promote digital literacy and financial inclusion across different demographics have likely levelled the playing field, ensuring that all groups can effectively use and benefit from mobile payment systems. Thus, the universal design, equal access, similar financial needs, and increased digital literacy collectively contribute to the consistent satisfaction levels observed across different marital statuses.

H13d: There is a significant impact of different educational level on user satisfaction of mobile payment system users.

The significant differences in user satisfaction with mobile payment systems across educational levels, identified through the Kruskal-Wallis Test, reflect various contributing factors. Individuals with higher educational attainment, such as Ph.D. holders and chartered accountants, typically exhibit greater technological proficiency and comfort with digital tools, leading to higher satisfaction. Their deeper understanding of financial products and services also

raises expectations, influencing satisfaction levels positively when these expectations are met. Moreover, higher education facilitates access to resources like tutorials and guides, enhancing understanding and utilization of mobile payment features. Educated individuals are also more likely to trust and perceive the benefits of these systems, while their ability to customize and solve problems independently further enhances satisfaction. Statistical robustness, including sample size differences among educational groups, underscores the diverse expectations and experiences that contribute to these satisfaction disparities across educational backgrounds.

The pairwise comparisons revealed significant differences in user satisfaction of mobile payment systems between Ph.D. holders and other educational levels (chartered accountants, undergraduates, postgraduates, and those with higher secondary education or below). Ph.D. holders, known for their advanced technical proficiency and higher expectations, showed greater satisfaction, likely due to their ability to navigate complex features and customize settings. These findings highlight the impact of educational background on perceptions of system usability and effectiveness, underscoring the need for tailored design to meet diverse user expectations effectively ($p < 0.05$).

H13e: There is a significant impact of different occupation on user satisfaction of mobile payment system users.

The Kruskal-Wallis Test (Asymp. Sig = 0.002) highlighted significant differences in user satisfaction with mobile payment systems across various occupation categories, including Corporate Professionals, Government/Public Service employees, Private business/job holders, Students, and those Not Employed. These differences can be explained by several factors. Occupation-specific usage contexts and frequency of mobile payment system use play a crucial role, with professions like Corporate Professionals and Government/Public Service roles likely experiencing higher usage and demanding specific functionalities like efficiency and security. Varying expectations related to technological proficiency also influence satisfaction, as occupations with frequent digital tool usage tend to exhibit higher satisfaction.

Access to support resources, such as training and troubleshooting, further enhances satisfaction, particularly in sectors providing robust support systems. Professional demands for reliability and efficiency also shape satisfaction levels, with occupations prioritizing these aspects showing higher satisfaction compared to others. These insights underscore how occupational context and specific usage demands influence perceptions of mobile payment system usability and effectiveness across diverse user groups.

Further the results of the pairwise comparisons can be justified as corporate professionals often require seamless, secure, and efficient transaction processes to meet their professional demands, which may include frequent financial transactions, client interactions, or business-related payments. Their satisfaction may be influenced by the system's reliability, speed, and user interface, crucial for maintaining productivity and professionalism. In contrast, private business/job holders, while also valuing efficiency, may have slightly different priorities based on the specific demands of their business operations or personal financial management. This nuanced difference in occupational requirements likely contributes to the observed significant difference in user satisfaction between these two groups regarding mobile payment systems.

H13f: There is a significant impact of different income level on user satisfaction of mobile payment system users.

The insignificant differences in user satisfaction of mobile payment systems across different income levels, as indicated by the Kruskal-Wallis Test (Asymp. Sig = 0.161), can be attributed to several factors. Modern mobile payment systems are designed to be inclusive and accessible across various income brackets, ensuring that all users, regardless of income level, can navigate and utilize these systems effectively. Additionally, the functionality and benefits offered by these systems, such as convenience, speed, and security, are generally perceived similarly across different income groups. Moreover, efforts in digital literacy and financial inclusion have likely bridged any potential disparities in satisfaction that might arise from income differences, ensuring that users across all income levels can access and benefit from mobile payment

technologies equally. Therefore, the lack of significant differences in user satisfaction across income levels suggests that mobile payment systems are fulfilling their intended role of providing accessible and satisfactory financial services to a diverse user base.

H13g: There is a significant impact of different mobile payment duration on user satisfaction of mobile payment system users.

The significant difference between all 3 levels of duration of mobile payment app used (less than one year, n = 118; 1 to 3 year, n = 309; and more than 3 years = 257) as indicated by the Kruskal-Wallis Test (Asymp. Sig = 0.063), can be attributed to several factors. Modern mobile payment systems are designed to be easy, interactive and with sufficient navigation features which are designed for easy adaptability. This has made the users feel comfortable in the initial stages of exploring and adapting to mobile payment apps, thus making the diffusion a smooth and less time consuming initiative. The ecosystem in India is dynamic with innovation occurring on a very fast scale, making it attractive for users to experiment and quickly include these new innovations in their lifestyle. Hence, the hypothesis (there is a significant difference across different duration of mobile payment uses and respondents' Satisfaction of mobile payment system users) is unsupported.

5.2 THEORETICAL IMPLICATION

The findings of this study offer significant theoretical implications for the integration of the Diffusion of Innovations (DOI) theory and the Theory of Planned Behaviour (TPB) in the context of mobile payment system adoption in the Delhi-NCR region. According to the DOI theory, proposed by Everett Rogers, the adoption of new innovations is influenced by factors such as relative advantage, compatibility, complexity, trialability, and observability (Rogers et al., 2014). In this study, the insignificant impact of relative advantage on ease of use suggests that even though users recognize the benefits of mobile payment systems, these advantages do not necessarily translate into perceptions of ease of use. This finding highlights the need for further exploration into why

perceived benefits might not simplify usage experiences, possibly due to complexity perceptions or other intervening variables.

The positive impact of compatibility on perceived usefulness reinforces the DOI theory's assertion that innovations consistent with existing values and practices are more readily adopted. This finding aligns with previous studies, indicating that when mobile payment systems fit well with users' lifestyles and technological environment, they are perceived as more useful. The significant negative relationship between complexity and ease of use confirms the DOI theory's proposition that perceived complexity hinders adoption. This emphasizes the importance of simplifying mobile payment systems to enhance user satisfaction and adoption rates. The finding that trialability significantly impacts ease of use supports the DOI theory's suggestion that allowing potential adopters to experiment with an innovation can reduce uncertainty and enhance perceptions of ease. This reinforces the importance of providing trial opportunities for mobile payment systems to facilitate user adoption. Observability's positive impact on perceived usefulness aligns with the DOI theory's assertion that visible results of an innovation facilitate adoption. Users are more likely to perceive mobile payment systems as useful when they can observe others' successful experiences with the technology.

The TPB, proposed by Ajzen (Ajzen, 1991), posits that behaviour is driven by intentions, which are influenced by attitudes, subjective norms, and perceived behavioural control. The strong positive impact of perceived usefulness on user satisfaction aligns with the TPB's emphasis on attitudes towards behaviour (Ajzen, 1991). When users perceive mobile payment systems as useful, their positive attitude towards the system enhances their overall satisfaction. This supports the notion that perceived benefits are crucial in shaping behavioural intentions and subsequent satisfaction. The significant positive relationship between ease of use and user satisfaction corroborates the TPB's focus on perceived behavioural control. Users who find mobile payment systems easy to use are more likely to feel capable and in control, leading to higher satisfaction levels. This finding underscores the importance of designing user-friendly systems to enhance user satisfaction and promote adoption.

The integration of DOI and TPB provides a comprehensive framework for understanding mobile payment system adoption. The significant impact of compatibility on perceived usefulness suggests that aligning mobile payment systems with users' existing values and practices (DOI) enhances their perceived utility (TPB), thereby influencing attitudes and intentions towards usage. The relationship between complexity and ease of use (DOI) and its subsequent impact on user satisfaction (TPB) highlights the interplay between perceived innovation characteristics and behavioural control perceptions. Simplifying mobile payment systems can enhance perceived ease of use, leading to higher user satisfaction. The positive impact of trialability on ease of use indicates that allowing users to experiment with mobile payment systems (DOI) enhances their perceived control and ease of use (TPB), facilitating adoption and satisfaction.

5.3 PRACTICAL IMPLICATION

The findings of this study provide significant practical implications for developers, policymakers, and stakeholders involved in the design, implementation, and promotion of mobile payment systems. Firstly, the significant impact of ease of use on user satisfaction underscores the importance of prioritizing intuitive and straightforward interfaces in mobile payment systems. Simplified navigation and clear instructions can enhance user experiences and promote broader adoption. Additionally, the positive impact of compatibility on perceived usefulness highlights the need for these systems to align with users' existing practices and technological environments. Developers should ensure that mobile payment systems are compatible with various devices and seamlessly integrate with other commonly used applications.

Furthermore, the significant relationship between trialability and ease of use underscores the importance of allowing potential users to experiment with mobile payment systems. Providing trial periods or demo versions can reduce user uncertainty and enhance the perceived ease of use. To leverage the positive impact of observability on perceived usefulness, stakeholders should focus on showcasing the benefits and successful use cases of mobile payment systems.

This can be achieved through marketing campaigns, user testimonials, and demonstrations that highlight the advantages and practical applications of the technology. The negative impact of complexity on ease of use suggests that reducing the perceived complexity of mobile payment systems is crucial. Developers should focus on streamlining processes, minimizing technical jargon, and providing clear and concise user guides. Regular updates based on user feedback are essential for maintaining high levels of user satisfaction. Developers should establish robust mechanisms for collecting and incorporating user feedback to continuously enhance the usability and functionality of mobile payment systems. Although this study did not specifically focus on security, it remains a critical factor for user adoption. Ensuring robust security measures and effectively communicating these to users can enhance trust and promote wider adoption of mobile payment systems.

5.4 MANAGERIAL IMPLICATION

In terms of managerial implications, the findings offer valuable insights for managers and decision-makers involved in the strategic planning and implementation of mobile payment systems. Managers should ensure that the development and promotion of mobile payment systems align with the broader organizational strategy. This includes integrating mobile payment solutions with existing services and ensuring compatibility with other digital platforms used by the organization. Given the importance of ease of use and compatibility, managers should allocate sufficient resources to user experience (UX) design and testing. Investing in UX research and development can yield significant returns in terms of user satisfaction and adoption rates.

The positive impact of observability suggests that effective marketing and communication strategies are essential. Managers should focus on highlighting real-world applications and success stories of mobile payment systems to demonstrate their usefulness and encourage adoption. Providing comprehensive training and support services can enhance user satisfaction and ease of use. Managers should implement training programs for both employees and customers to ensure they are comfortable using the mobile payment system.

Furthermore, managers should establish robust mechanisms for monitoring the performance and user satisfaction of mobile payment systems. Regular evaluations can help identify areas for improvement and ensure that the system continues to meet user needs and expectations.

The rapidly evolving nature of technology necessitates continuous innovation and adaptation. Managers should stay informed about emerging trends and technologies in the mobile payment industry and be prepared to adapt their strategies accordingly. Engaging with various stakeholders, including customers, employees, and partners, is crucial for the successful implementation of mobile payment systems. Managers should foster open communication channels to gather insights and feedback from all stakeholders.

In conclusion, the practical and managerial implications derived from this study highlight the importance of user-centric design, strategic alignment, and continuous improvement in the adoption of mobile payment systems.

5.5 CONTRIBUTION OF THIS RESEARCH

This research has examined the external factors of the ecosystem along with the factors of TAM providing a comprehensive understanding of the factors influencing the diffusion of mobile payments in Delhi-NCR. This research is comprehensive research on mobile payments after the introduction of UPI platform in 2016 and after witnessing an exponential growth in the volume and value of such transactions in an ecosystem that has evolved with inclusion of service aggregators and online shopping portals/ platforms in the Indian context, which is increasing being used in the daily lives of the consumers. This also implies a greater influence of compatibility and observability in the process of diffusion of mobile payments. By addressing the factors identified in this research, developers and managers can enhance user satisfaction, drive broader adoption, and ultimately achieve the successful diffusion of mobile payment systems in the Delhi-NCR region and beyond.

5.6 LIMITATIONS OF THE STUDY AND SCOPE FOR FURTHER RESEARCH

Future research should continue to explore these implications in diverse contexts to refine best practices and further enhance the effectiveness of mobile payment systems. This research has focussed on Mobile payments in totality. Since there are a few variants in the Mobile Payments landscape, going forward, further research may examine the variants of mobile payments i.e. QR code, NFC and mobile/ Virtual payment address based to examine the popularity and acceptance of these variants in the diffusion of mobile payments.

The online / retail shopping and other financial services are the ones that fund this payment technology by way of providing acceptance infrastructure. Their role and influence on the diffusion could also be taken up for further research as also a longitudinal study on the same.

This research has not specifically focused on security as an issue or factor in the diffusion process. The same could be covered in a more focused way.

The specific influence of social media shopping via WhatsApp, Facebook and Instagram is an area worth investigating as a separate research topic under the factor of compatibility. While the same have been broadly considered under the umbrella of compatibility, the same may be considered for future research.

The role of Bharat Bill Pay Services is a one stop gateway for payment of all utility bills on the UPI platform. This is a very useful feature on the platform and leads to synergies in record management, collection processes and serve as a reminder for timely bill payments. Its role and influence deserve a specific study.

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SURVEY QUESTIONNAIRE

Greetings!

I am working on my PHD research thesis, focusing on the core area of Factors Influencing Diffusion of Mobile Payments. Diffusion is the process when new ideas/ technologies spread through a population gradually. This is usually through acceptance of new technology and continued usage of the same. Your valuable responses are required to measure the various aspects of my study (regarding this diffusion) successfully.

You are requested to fill the questionnaire without skipping any items of the respective questionnaire. In the context of this survey, no confidential questions regarding your bank account details would be asked. Questions are generic in nature to understand the factors that influenced the usage of mobile payments. The information provided by you will be kept strictly confidential and will be used only for research purpose.

1. Name

2. Mobile Number

3. Email Address

4. Place Mark only one Oval

Delhi / NCR

Section B

Usage of Mobile payment: I would like to know something about the general practices that you would follow while undertaking Mobile payments.

5. Which type of Mobile payment service do you frequently use?

Mark only one Oval

- Bank's Mobile App
- A Third Party App
- Wallet Service
- Multiple payment Apps (A mix of the above)

6. Duration of usage of Mobile Payments?

Mark only one Oval

- Less than a Year
- 1-3 Years
- More than 3 Years

Section C: Relative Advantage :

7. What are the perceived advantages for using or continuation of usage of mobile payments.

Mark only one Oval per row

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
Mobile payments provide better accessibility compared to traditional payments methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payments are more environment friendly than traditional paper based transactions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using mobile payments enables me to accomplish tasks more quickly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using mobile payments is more convenient compared to traditional payment methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payments offers better security features than traditional payment methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment allows for easier tracking of expenses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment provides greater flexibility in managing finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment offers a wider range of payment options to traditional methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Section D: Complexity

This section measures the factor of Complexity (difficult to use the mobile payment) as a possible influence on acceptance and usage of Mobile payments.

On a 5 point scale (1 to 5: low to high), how would you rate the following aspects of the banking services available through Mobile payments.

Mark only one Oval per row

	Strongly Disagree	Disagree	Either Agree or Disagree	Agree	Strongly Agree
Setting up mobile payments on my device was straight forward	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using mobile payment requires minimal effort on my part	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it easy to troubleshoot any issues with mobile payment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remembering how to use mobile payment is not a challenge for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Section E: Compatibility

With the advent of affordable data, emergence of fintech's, digital convenience coupled with payment options has opened a whole new world of convenience and changes of the lifestyle of people in India. A certain compatibility of accepting these lifestyle choices and making mobile payment may have emerged. This section will attempt to measure the factor of compatibility on these constructs and their influence on Mobile Payments.

How compatible is mobile payments with your lifestyle *

Mark only one Oval per row

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
Mobile payment is compatible with my lifestyle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payments aligns well with my current Banking habits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payments integrates seamlessly with the way I conduct transactions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment is compatible with my trust in digital transaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Section F: Observability

In this section, we shall measure whether the acceptance and usage has been influenced by Observability.

Observability: On a 5 point scale (strongly disagree to strongly agree) , please rate your views.

Mark only one Oval per row

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
The benefits of using mobile payments are clear to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I receive positive feedback about others when I use mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People around me are using mobile payments which encourage me to use it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I notice improvements in my financial management since using mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Section F: Observability

In this section, we shall measure whether the acceptance and usage has been influenced by Observability.

Observability: On a 5 point scale (strongly disagree to strongly agree) , please rate your views.

Mark only one Oval per row

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
The benefits of using mobile payments are clear to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I receive positive feedback about others when I use mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People around me are using mobile payments which encourage me to use it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I notice improvements in my financial management since using mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Section G: Trialability

This section will examine the factor of trialability as an influence on acceptance and usage of mobile payments.

To examine the factor of Trialability, we would understand the various stages of the trial process by answering the following questions on a 5 point scale, (1 to 5: not at all important to very important), 1 being the lowest and 5 being the highest.

Mark only one Oval per row

	Not at all Important	Not Important	Neither Important Nor Unimportant	Important	Very Important
It was easy to download and test the functionality of a mobile payment app	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could easily get Help from friends, family and colleagues for using the mobile payment app	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help functionality within the app was useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Section H: Perceived Usefulness

This section captures the responses pertaining to Perceived Usefulness of Mobile Payments.

Mark only one Oval per row

	Not at all Important	Not Important	Neither Important Nor Unimportant	Important	Very Important
I can see the settlement status (Useful at receivers end)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get confirmatory messages via SMS and mail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can see balances and operations in my account on real time basis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facilitates better time management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Section I: Perceived Ease of Use

Mark only one Oval per row

	Not at all Important	Not Important	Neither Important Nor Unimportant	Important	Very Important
It is easy to make mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mobile payment menu is easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mobile payment does not need expertise to operate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The interface of mobile payment applications are user friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Section J: User Satisfaction

Mark only one Oval per row

	Not at all Important	Not Important	Neither Important Nor Unimportant	Important	Very Important
The convenience of mobile payment transaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The speed of Completing transactions using mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The security features provided by mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section J: Demographic information

15. Gender*

Mark only one Oval

- Male
 - Female
 - Other
-

16. Age*

Mark only one Oval

- 16-25 Years
 - 26-35 Years
 - 36-45 Years
 - 46-55 Years
 - 56-65 Years
 - Above 65 Years
-

17. Occupation*

Mark only one Oval

- Government / Public Service
 - Corporate Professional
 - Private Job - Employee
 - Private Business / Self Employed
 - Not Employed
 - Student
-

18. What is the highest education level you have completed? *

Mark only one Oval

- Primary
 - Secondary
 - Higher Secondary / 12th Pass
 - Technical College
 - University Degree
 - Others
-

19. What is your marital status? *

Mark only one Oval

- Married
 - Divorced / Widowed / Separated
 - Single
-

20. What is your average annual Income? *

Mark only one Oval

- 100,000 or Less
 - 100,001 to 200,000
 - 200,001 to 500,000
 - 500,001 to 10,00,000
 - Greater than 10,00,001
-

KEY TO ABBREVIATIONS

UPI	United Payments Interface
QR Code	Quick Response Code
IMPS	Immediate Payments Service
NPCI	National Payments Corporation of India
ATM	Automated Teller Machine
RBI	Reserve Bank of India
RTGS	Real Time Gross Settlement
NEFT	National Electronics Funds Transfer
TAM	Technology Acceptance Model
IDT/DOI	Innovation Diffusion Theory
RA	Relative Advantage
Com	Complexity
Compb	Compatibility
Tri	Trialability
Obs	Observability
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
MICR	Magnetic Ink Character Recognition
GoI	Government of India
OECD	Organisation for Economic Cooperation and Development
POS	Point of Sale
MDR	Merchant Discount Rate
E Banking	Electronic Banking
2FA	2 factor authentication
NFC	Near Field Communication
GDP	Gross Domestic product
TRA	Theory of Reasoned Action
CTS	Cheque Truncation System

PUBLICATIONS IN RESEARCH AREA BY SCHOLAR

Published an article on “Study of factors that influence countries to go cashless or less cash” IUJ Journal of Management Vol 8, No.2, Dec 2020.

2. Presented a paper on “Factors Influencing Diffusion of Innovation of Mobile Payments” at Doctoral Conference on Contemporary trends in Management Research in Post Covid 19 Era on Jan 18, 2022, organized by ICFAI University, Jharkhand.

3. A Hybrid IDT-TAM model for Mobile Payments in Delhi-NCR has been accepted for publishing in the International Journal of Intelligent Systems and Applications in Engineering (IJISAE) with manuscript id : IJISAE_2024_08_5498.