

Exploring the Exponential Growth of UPI in India: A Study on Digital Payment Transformation (2016–2024)

¹Seena Mary Mathew, ²Dr. Shanimon.S, ³Sarvy Joseph, ⁴Dr. Minija Abraham

¹Research Scholar, Government College Attingal
University of Kerala
seenamary15@gmail.com

²Assistant Professor of Commerce, Government College Kattappana, Idukki
Mahatma Gandhi University
shanimonimon@gmail.com

³Assistant Professor of Commerce, Government College Kattappana, Idukki
Mahatma Gandhi University
sarvyjoseph@gmail.com

⁴Dr. Minija Abraham
Assistant Professor of Commerce, Government College Kattappana,
Mahatma Gandhi University
minijajohnny@gmail.com

How to cite this article: Seena Mary Mathew, Shanimon.S, Sarvy Joseph, Minija Abraham (2024) Exploring the Exponential Growth of UPI in India: A Study on Digital Payment Transformation (2016–2024). *Library Progress International*, 44(3), 10796-10805

ABSTRACT

This paper analyses the rapid growth of Unified Payments Interface (UPI) transactions in India from 2016 to 2024, focusing on both transaction volume and value. UPI, introduced by the National Payments Corporation of India (NPCI), has transformed the digital payment landscape by enabling real-time, bank-to-bank transfers. The adoption of UPI grew exponentially, particularly during the COVID-19 pandemic, which accelerated the shift to contactless payments. From a modest start in 2016, with 2.65 million transactions and a value of ₹893.07 crores, UPI has witnessed continuous growth in both volume and value. By 2024, UPI transactions are projected to exceed 108 billion in volume and ₹1,57,88,817.25 crores in value annually. This growth trajectory highlights the platform's expanding integration across various sectors and its increasing role in facilitating high-value transactions. The paper identifies key drivers of UPI's growth, including digitalization, government policy, mobile penetration, and the platform's ease of use, along with a comparison of growth phases across the years. UPI's progression from a peer-to-peer transfer tool to a comprehensive infrastructure for retail, government, and business payments reflects its transformative impact on India's financial ecosystem.

1. Key words: Unified Payment Interface, National Payment Corporation, Digital Money, Digital Banking, Technological Development

2. Introduction

The progress of a country's financial institutions is crucial to its economic development. As a result, an economy's banking sector serves as a catalyst for the overall growth and development of the economy. Today, all Indian banks are incorporating various technological innovations into their existing business models and attempting to implement growth- and customer-oriented plans and strategies rather than profit-oriented plans and strategies.

Prior to 2016, India's banking system relied on traditional methods of fund transfer such as RTGS, NEFT, IMIMPS, and so on. The emergence of a more standardized payment platform was required due to the complexity of the paper-based and the rigid system of money supply. Furthermore, India's digital India initiative requires the banking sector to adhere to a digitally covered ecosystem centered on paperless and cashless economies. Thus, various types of digital payment modes emerged in the banking sector landscape, and the Unified Payment Interface was one of them. The National Payments Corporation of India (NPCI) created the Unified Payment Interface, and its operations are governed by the Reserve Bank of India (RBI). It is a payment system that enables interbank fund transfers and serves as a fact-track digital payment method for facilitating real-time and instant payment transactions between multiple bank accounts. Users can transfer funds using a UPI virtual payment address or by scanning a QR code with UPI applications. UPI allows for the free transfer of funds, and it has earned the title of the simplest and most convenient payment platform.

Review of literature

With the introduction of the information system, India's banking sector is now undergoing a digital transformation in all operational aspects. Banking operations are shifting from a paper-based to a virtual mode of operation as technology advances. Banks are working to create a digitally enabled ecosystem and a new age of technology known as UPI to facilitate quick and secure fund transfers. Related studies highlighted the situations and served as the foundation for this study. Mahesh, A., et al. (2021) stated that the advent of ICT enabled a wide variety of electronic payment mechanisms, and among them, the UPI allowed users to facilitate a safe and secure mode of payment. The study examined the strengths, weaknesses, opportunities, and threats of the UPI platform and pointed out that it had a superior advantage over the existing payment system and was one of the leading payment platforms in the retail payment industry. Kakade, R.B., et al. (2017) explained the working mechanism and features of the UPI platform and argued that the UPI was in its starting stage and that many problems and challenges, like server issues, etc., were more common on this platform. It highlighted that the UPI would change how transactions took place, as the growth of internet banking and smartphones resulted in the adoption of the UPI digital platform by bank customers. Gochhwal (2017) pointed out that the new generation of technology called UPI had the potential to transform the payment environment with a real-time and instant payment system. It stated the key driving forces behind the improvement of the UPI over the existing payment methods and discussed the analysis of the UPI architecture. The study tried to analyse the impact of UPI on the retail payment industry by examining the impact on the physical world, online payments, and business. It was concluded that the UPI became the most advanced payment system, working on a safe, secure, and robust platform for digital payments. Tung V. V. (2018) stated that the demonetization resulted in the emergence of the concept of a cashless economy, and thereby many digital payment systems emerged in the banking sector. The study found that the UPI was a convenient method of payment, and the users had a positive attitude towards the UPI transaction. The review of the literature revealed that, several studies in the field of digital payment systems and their various modes have been conducted, but the current study focuses on the UPI platform for analyzing the growth rate attained by UPI transactions and the market share of the various UPI applications up to this point. It also attempts to bridge the gap by analyzing the various stages of development of UPI technology, and the study goes into detail about UPI technology and the growth and value addition that UPI brings to the existing digital payment environment.

3. Statement of the problem

The banking industry is undergoing a financial revolution as a result of the development of numerous technological applications. The innovations force banks to adopt digitally empowered applications to provide their customers with more convenience and personalized services. The introduction of new technology, the implementation of innovative products and services, and the emergence of new competitors in a technologically enabled environment all contribute to the rapid development and growth of various digital payment platforms. Digital payment modes transform the banking industry by providing a more transparent and user-friendly transaction environment, and they enable instant real-time payment without any kind of delay, as opposed to the traditional paper-based transaction system. The Indian banking industry's roadmap shows that they are moving toward digital means for providing a better customer experience, and almost all banks' customer bases are inclined toward the Internet and digital banking for more personalized services. This promotes the emergence of various

digital payment modes, with a focus on creating a cashless and digitalized economy from a cash economy. All the digital payment modes offer various kinds of services and benefits to interested parties.

The UPI also attained popularity for creating a convenient digital platform for payments, and various UPI apps are being used for their attractive features and uniqueness. The UPI has greater advancements over the existing payment system, and the UPI has the potential to provide adequate digital payment infrastructure to the Indian economy in a very cost-effective manner. Various reports show that India has become a leader in providing real-time payment facilities due to UPI technology, and many other nations are now trying to acquire and follow the success of India's UPI system in their own payment markets. It is essential to analyse the contribution and status of such a superior payment technology called UPI towards the digital payment ecosystem. By analysing the fundamentals of UPI, its features, and its basic infrastructure, the study investigates the digital payment environment with the new-age technology of the Unified Payment Interface. It investigates the various stages of UPI technology development and the features added to each phase. It also investigates the various UPI applications and their market share, and in order to determine the popularity and growth of the UPI, UPI transactions in terms of both value and volume are examined. The current study investigates the Unified Payment Interface platform for digital payments, as well as its rate of growth and current status over the last five years. The study's goal is to see if UPI payment platforms can act as a driving force in the digitalized economy. The analysis assists in determining the UPI transaction's rate of growth and market share. Furthermore, UPI transaction analysis will aid marketers in identifying and comprehending users' payment patterns and spending habits. The study's findings will assist the Indian banking sector in strengthening and enforcing their digital payment platforms through the development and implementation of various strategies to increase the market share of various applications and customer adoption of these digital payment modes.

4. Objectives

The present study, titled "Digital Banking: India's Unified Payment Interface Mechanism for the Development of Digital Banking," , has been initiated to attain the following objectives:

- To study the digital payment modes regarding UPI and the fundamentals of UPI
- To examine the various development phases of UPI technology and the features added to each phase
- To understand the various UPI applications and their market share
- To analyse the growth rate and status of the UPI transactions in terms of value and volume

5. Methodology

The present study is based on secondary data. The data are collected from the RBI database, NPCI reports, recognized periodicals, journals, the RBI Bulletin, and websites. The paper employed percentage analysis to find out the growth of UPI transactions. The period of the UPI transactions statistical report ranges from 2018 to 2022. The study mainly aims to gain insight into the digital payment environment and UPI technology and its status and growth over the years

Unified Payment Interface (Upi): Stages Of Development



Unified Payment Interface was developed by the National Payments Corporation of India (NPCI) in August 2016, and its operations are regulated by the Reserve Bank of India (RBI). It is a payment system that allows the interbank transfer of funds, and it acts as a digital payment method for facilitating a real-time and instant payment transaction between multiple bank accounts. UPI applications allow users to transfer funds using a UPI virtual payment address or by scanning the QR code. UPI facilitates the transfer of funds free of charge, and it achieves the status of the easiest and most convenient form of payment platform. UPI allows interbank peer-to-peer (P2P) and person-to-merchant (P2M) payment transactions.

6. UPI Applications

Various applications are working on the UPI platform. The UPI payment mode is designed for mobile phone applications. Today's banking mobile application can also provide the UPI platform in their application for providing UPI services. Each application is unique, with its own added features and a personalized customer

experience through each UPI application.

7. Most Popular UPI applications

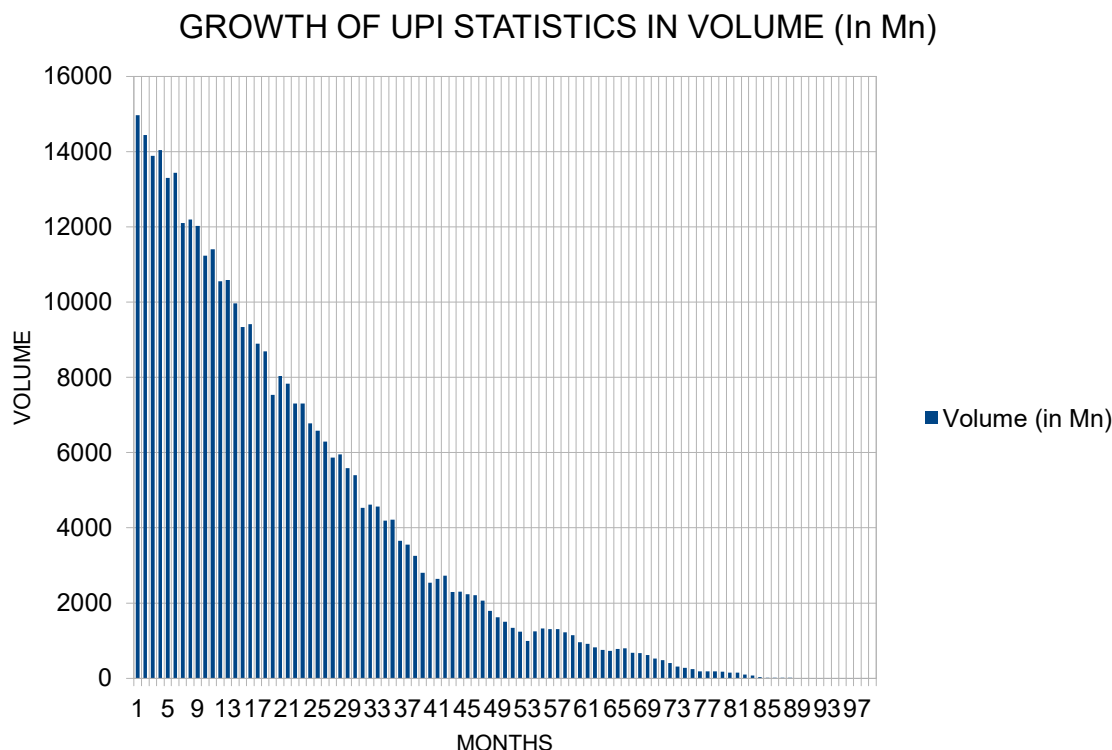
UPI APPS	DETAILS
<p>1.PhonePe</p>  <p>PhonePe</p>	<p>Leading online app for UPI services Launched in 2015. Owned by Flipkart, and it's a subsidiary of Walmart. It protects the user's money with the best-in-class security system Services provided include digital payments, mobile payments, and payment systems. It is available in 11 spoken languages. The users can make payments such as utility bills, charges, money transfers, credit card bills, and even the insurance premium</p>
<p>2. Gpay</p> 	<p>Google Pay also known as Gpay, Developed by Google, It is quite popular because of its simple way of operation and feature richness. It allows users to earn scratch application cards and other rewards after each transaction. It works with all the banks that support the BHIM UPI. It allows users to make transactions for in-store and online purchases by linking their credit or debit cards.</p>
<p>3. Paytm</p>	<p>Founded in 2010, Acronym-Pay through mobiles. Promotes secure and fast digital payments. More than 20 million merchants and businesses have adopted Paytm for accepting payments in digital mode. Services offered: fund transfer, bill payments, ticketing services, online gaming, retail brokerage products. The main aim is to bring at least half a billion people into the mainstream of the economy through digital payments</p>
<p>4. SBI Pay</p>	<p>Launched by the SBI bank</p>

 <p>SBI Pay</p>		<p>The easiest and most simple app It allows the account holders of almost all banks that are live members of UPI to fund transfers, bill payments, recharges, shopping, etc. Provide the flexibility of making payments at the user's convenience 24*7</p>
<p>5 .BHIM</p>  <p>UPI)</p>		<p>BHIM-Bharat Interface For Money, Developer: NPCI (National Payments Corporation Of India). Launched in 2016 It is a UPI-enabled platform for facilitating safe and secure payments using mobile phones. Services: send and request money, scan and pay, check transaction history, view the static QR code and the virtual payment addresses linked to the account, switch between multiple accounts.</p>

Source: Reserve Bank of India, Annual Reports

Analysis

UPI payment solution, which provides a user-friendly, mobile-centric, instant, and real-time payment facility through various UPI applications, has marked a milestone in capturing market share. Digital payment infrastructure in India and many payment modes have arisen as a means for making instant and real-time payments. UUPI (Unified Payment Interface), developed by the National Payment Corporation of India, is one of the most popular digital payment modes in India. The study examines the fundamentals of the UPI payment system and includes the various UPI apps that are widely in use based on their features and market share. UPI can be termed a revolutionary payment platform in the entire retail payment ecosystem. The UPI payment solution, which provides a user-friendly, mobile-centric, instant, and real-time payment facility through various UPI applications, has marked a milestone in capturing market share. From the analysis, it is clear that PhonePe and Google Pay are the two major leaders that are dominating the UPI market as of 2022. As per the data (Fig. 1), PhonePe contributes 46% to the total UPI market share, followed by Google Pay with a 33% share, Paytm with a 15% share, Amazon Pay with a 1% share, and other applications such as Whatsapp Pay and Mobikwik with a share of 4.1%. ENT PLATFORM GROWTH AND STATUS Today, all the Indian banks are on the way to the adoption of various technological innovations to their existing business models and are trying to adopt growth-and customer-oriented plans instead of profit-oriented plans and strategies. The banking system in India before 2016 followed a tradition of traditional fund transfers such as RTGS, NEFT, IMPS, etc. Due to the complexity of the paper-based system and the rigid system of rules, there is a need for the emergence of an automated and more standardized payment platform. Also, the Digital India initiative forces the banking sector to follow a digitally covered ecosystem focusing on paperless and cashless-enabled economies. Thus, various digital payment modes have emerged in the banking sector landscape, and the unified payment interface is one of them.



The growth of Unified Payments Interface (UPI) transactions over the five-year period from 2019 to 2024 demonstrates a significant shift in the digital payments landscape in India. UPI, which enables real-time bank-to-bank transactions, has experienced remarkable growth in both transaction volume and value. In 2019, UPI crossed the 1 billion monthly transaction mark, signifying the increasing acceptance of digital payments. This momentum continued as the COVID-19 pandemic accelerated the transition to contactless transactions, leading to a monthly volume of over 2 billion by the end of 2020. By 2024, UPI is expected to surpass 12 billion transactions monthly, reflecting an overall increase of 1,100% in just five years. The ease of use, government push for digital transactions, and the growth of smartphone penetration in India have all contributed to this unprecedented volume growth. In terms of value, UPI has shown even more dramatic increases. In 2019, the annual transaction value was between ₹18 to ₹21 lakh crore (approximately \$240 billion), which ballooned to around ₹150 lakh crore (\$2 trillion) by the end of 2023. This marks a staggering growth of 730-860% over the five-year period, with projections for 2024 estimating transaction values exceeding ₹175 lakh crore. This rise is indicative of not just the number of transactions increasing but also the higher value of goods and services being transacted through UPI, signaling broader adoption across various sectors, including retail, e-commerce, and even peer-to-peer payments. The increase in transaction value underscores UPI's role as a mainstream payment mechanism in India's economy.

The annual transaction volume data offers further insights into UPI's growth trajectory. In 2019, UPI recorded around 12 billion annual transactions, but by 2024, this number is projected to reach 140 billion transactions—a growth of over 1,050%. This expansion illustrates how UPI has shifted from being a niche payment option to a ubiquitous tool for daily transactions across the country. The significant jump in both monthly and annual transactions highlights UPI's role in bridging the gap between traditional banking services and the digital-first economy. The rise in the number of users, along with the integration of UPI with various merchant platforms, has amplified its usage considerably. One of the critical drivers of this growth is the increasing integration of UPI into various economic sectors. UPI has extended its reach beyond individual person-to-person transfers and now covers business-to-consumer and even government payments. The simplicity and efficiency of UPI have made it a preferred method for small businesses, startups, and large corporations alike, which explains the sharp rise in

transaction values. Moreover, as more banks, fintech companies, and mobile payment apps incorporate UPI into their platforms, the growth in both volume and value has been further amplified. The rising volume indicates that not only are more people using UPI, but they are also using it more frequently for a wider range of transaction types. The phenomenal growth in both the volume and value of UPI transactions between 2019 and 2024 reflects its deep integration into India's financial ecosystem. A transaction volume growth of 1,100%, value growth of up to 860%, and annual transaction growth of 1,050% demonstrate UPI's transformative impact on digital payments in India. The rapid adoption of UPI underscores the increasing digital literacy, the trust in secure payment mechanisms, and the ease of real-time payments that have reshaped consumer behavior. By 2024, UPI is poised to cement its role as the backbone of India's digital payments infrastructure, driving economic inclusion and financial innovation.

According to the NPCI report, the UPI platform has witnessed a rapid rise in recent years in both the volume and value of transactions. Since its launch in 2016, the UPI transaction has witnessed a positive growth rate in both volume and value. The data about the period of 2018 to 2022 is taken for analysis. As of December 2022, the total volume had jumped to 7,829 million transactions worth 12,82,055 crores. The analysis of the volume and value of UPI transactions shows a positive growth rate, which indicates that the UPI platform is growing at a much faster rate. The UPI transactions achieved a higher growth rate during December 2018 in terms of both the volume and value of transactions, which implies that the development taking place in the UPI technology in each phase has marked an upward trend in the growth rate of the UPI payment platform year by year. UPI is considered one of the most advanced and user-friendly payment methods. Users can send and receive money through this platform very instantly. When compared to other payment methods in the digital ecosystem, the position that the UPI platform holds is a remarkable achievement. The usage statistics of UPI transactions in the total financial transactions for the last 9 years are shown in Table 2 below.

Table 2: UPI Transactions in Value & Volume in India's Retail Digital Payment

Year	Total UPI Transactions in Value (in Crores)	UPI transaction (Volume in Mn)
2024	15788817.25	108369.26
2023	18284406.82	117675.97
2022	12595077.87	74044.48
2021	7159285.8	38744.55
2020	3387744.72	18880.89
2019	1836638.18	10787.54
2018	585710.45	15571.2
2017	57020.87	429.15
2016	893.07	2.65

Source: NPC-2024

7.1 The data in the table outlines the growth of UPI transactions in India, both in terms of value (in crores) and volume (in millions), from 2016 to the projected numbers for 2024. This period marks a transformative phase for India's retail digital payments ecosystem, with UPI emerging as a central platform for facilitating real-time transactions.

Early Adoption and Slow Start (2016-2017)

UPI was launched in 2016, and in its first year, the transaction volume was just 2.65 million, with a total value of

₹893.07 crores. By 2017, adoption began to pick up slightly, with the transaction volume increasing to 429.15 million, and the value reaching ₹57,020.87 crores. This was still a relatively modest start, but it set the stage for exponential growth in the years to come as awareness of UPI spread and more banks and users adopted the technology.

Initial Growth Phase (2018-2019)

The years 2018 and 2019 saw UPI transactions gaining significant traction. By 2018, the transaction volume had surged to 15,571.2 million, and the transaction value reached ₹5,85,710.45 crores. The following year, 2019, saw further growth with the volume reaching 10,787.54 million transactions and the value climbing to ₹18,36,638.18 crores. This growth was driven by increasing digitalization efforts and the convenience of using UPI for everyday transactions, from small peer-to-peer payments to retail purchases.

Acceleration during the Pandemic (2020-2021)

The COVID-19 pandemic in 2020 catalyzed the digital payment ecosystem, and UPI saw an even sharper increase in usage. Transaction volume nearly doubled, going from 10,787.54 million in 2019 to 18,880.89 million in 2020. Transaction values also surged, rising to ₹33,87,744.72 crores. By 2021, UPI transactions continued their upward trajectory, reaching 38,744.55 million in volume and ₹71,59,285.8 crores in value. The pandemic accelerated the need for contactless payments, with more users and businesses adopting UPI for daily transactions.

Maturity and High Growth (2022-2023)

UPI entered a phase of maturity in 2022, marked by significant growth in both volume and value. In 2022, the transaction volume reached 74,044.48 million, with a value of ₹1,25,95,077.87 crores. This rapid increase was driven by widespread acceptance of UPI across various sectors, including e-commerce, small businesses, and peer-to-peer payments. By 2023, transaction volume had further expanded to 1,17,675.97 million, while transaction value surged to ₹1,82,84,406.82 crores, indicating the deep penetration of UPI into the Indian payment ecosystem.

Projected Growth in 2024

Looking forward, UPI is expected to continue its impressive growth trajectory in 2024, with projected transaction volumes reaching 1,08,369.26 million and transaction values of ₹1,57,88,817.25 crores. Although the growth in volume might show slight deceleration compared to previous years, the transaction value still highlights UPI's increasing importance in high-value transactions and its broader integration across various payment platforms. This reflects the shift of UPI from a simple peer-to-peer tool to a critical infrastructure for retail, government, and business-to-business transactions. Data demonstrates UPI's meteoric rise from a nascent digital payment platform in 2016 to a dominant player in India's financial ecosystem by 2024. Both transaction volumes and values have experienced exponential growth, fueled by digitalization, increasing mobile penetration, and the growing need for secure, instant payments across the country. UPI achieves the status of the easiest and most convenient form of payment platform. Each UPI application is unique, with its own added features, and succeeds in giving a different customer experience through each UPI application. The most popular UPI applications have marked a milestone in capturing market share. It shows massive growth in the market share of various applications.

7.2 Findings

1. **Exponential Growth in Volume and Value:** UPI has experienced exponential growth from 2016 to 2024. Transaction volume grew from 2.65 million in 2016 to a projected 108 billion in 2024, while the value increased from ₹893.07 crores to ₹1,57,88,817.25 crores over the same period. This growth underscores UPI's expanding reach and usage across diverse economic sectors.
2. **Pandemic as a Catalyst:** The COVID-19 pandemic in 2020 acted as a significant catalyst for UPI's growth. Transaction volumes nearly doubled, and values surged as businesses and consumers shifted toward digital and contactless payments. This phase marked a turning point in UPI's evolution from a niche platform to a mainstream payment method.
3. **Maturity and Widespread Adoption (2021-2023):** By 2022, UPI entered a phase of maturity, recording substantial growth in both volume and value. With widespread adoption by businesses, e-commerce platforms, and government agencies, UPI became a cornerstone of India's payment infrastructure. The integration of UPI across various platforms contributed to its success.

4. Projected Growth in 2024: Projections for 2024 indicate continued growth, although the rate of volume increase may decelerate slightly. However, the transaction value is expected to remain high, highlighting UPI's increasing role in large-scale, high-value transactions. UPI's integration into business-to-business (B2B) and government-to-consumer (G2C) payments is likely to drive future growth.
5. Digital Inclusion and Financial Innovation: UPI's success is driven by several factors: government initiatives to promote digital payments, increased mobile penetration, and the platform's user-friendly interface. UPI has not only facilitated financial inclusion but also spurred innovation in digital payments, with various applications offering unique features that enhance the user experience. UPI's remarkable growth reflects its critical role in shaping India's digital payments ecosystem. It is poised to continue driving financial inclusion, innovation, and economic growth.
6. Phone Pay and Google Pay are the two major leaders that are dominating the UPI market. The UPI platform has witnessed a rapid rise in recent years in both the volume and value of transactions. The analysis of the volume and value of UPI transactions shows a positive growth rate, which indicates that the UPI platform is growing at a much faster rate. Since the launch of the UPI platform in 2016, the number of live members has shown an increasing trend, which implies the rising trend of the adoption of such a new-age payment solution by most banks. The UPI transaction percentage to the total financial transaction shows an upward trend, and the major portion of the financial transaction constitutes the UPI transaction, which implies that the UPI platform occupies a notable position in the entire digital ecosystem.
7. Due to the rapid growth and the increasing adoption rate of the UPI platform, it is necessary to give the full potential of this tech-driven new-age payment platform to the entire customer base. It is important to develop a merchant-centric UPI payment solution and thereby bring every consumer to the UPI platform. It is essential to encourage more customers to the UPI platforms, so the app developers are required to give attractive features and offers to the users so that people may feel inclined to try this innovative platform, thereby promoting the growth of UPI transactions.
8. It is high time to make digital payments a part of everybody's life, so every player in the digital payment ecosystem needs to uplift the payment industry by promoting payment methods to boost economic development. We also need to create and educate people to operate such payment systems along with their utilities.

7.3 CONCLUSION

The study focuses on an overview of the UPI, its development, status, and growth in India. The results show that there is high growth in the usage of UPI transactions, and UPI has become a superior digital payment platform over the existing payment methods. With the advancement and development of the UPI in each phase, users and beneficiaries can obtain a secure and convenient mode of payment with attractive and unique features. UPI has become one of the most successful technology-driven innovations in the banking landscape, and it enables India to become a successful leader in the list of countries making real-time payment markets. The banking sector is on its way to a tech-driven landscape by adopting various technological innovations and payment modes, such as UPI, which helps the banks achieve a milestone transformation in the payment infrastructure of the Indian banking sector. It is essential to point out that the UPI has become one of the most advanced new-age payment systems in the world, and it acts as a momentum force or an enabler to promote financial inclusion in the economy and also bring the customer base into the digital and cashless economies.

7.4 REFERENCE

1. Chawla, P.&et.al.,(2019). A Study On Awareness And Adoption Of Unified Payments Interface (UPI) For Digital Payments A Journal Of Composition Theory, XII (X)

2. Gochhwal. R.(2017). Unified Payment Interface—An Advancement in Payment Systems American Journal of Industrial and Business Management DOI: 10.4236/ajibm. 2017.710084.
3. Kakade,R.B.,&e.al.(2017). Unified Payment Interface (UPI): A Way Towards Cashless Economy International Research Journal of Engineering and Technology (IRJET) 4 (11)
4. Kolte, D.M.,& Humbe, (2019). Study of UPI/BHIM Payment System in India, International Journal of Science and Research (IJSR) 9(12)
5. Mahesh, A.,& et al. (2021). Digital Payment Service in India: A Case Study of the Unified Payment Interface International Journal of Case Studies in Business, IT, and Education, 5(1)
6. Tungare,V.(2018). A Study on Customer Insight Towards UPI (Unified Payment Interface): An Advancement of Mobile Payment Systems International Journal of Science and Research (IJSR) 8(4)
12. UPI transactions hit an all-time high in June as second wave ebbed - The Economic Times (India times.com).