International Journal for Multidisciplinary Research (IJFMR)

E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Digital Banking Growth in India: An Analysis of UPI as the Dominant Transaction Platform

Dr. Annapurna Sahoo

Assistant Professor & Head Department of Commerce Khallikote Unitary University, Berhampur, Ganjam, Odisha

Abstract

The banking sector in India plays a crucial role in driving economic growth by facilitating an efficient and reliable payment system that meets the needs of businesses, government institutions, and the general public. Over the past decade, digital banking platforms and electronic payment systems have significantly transformed the financial transaction landscape by enhancing efficiency, transparency, and financial inclusion.The present study examines the growth trajectory of digital banking in India through a comprehensive post-COVID trend analysis using secondary data. The data have been sourced from statistical publications and annual reports of the Reserve Bank of India (RBI) and transaction statistics published by the National Payments Corporation of India (NPCI). The study employs Compound Annual Growth Rate (CAGR) and trend analysis techniques to evaluate the structural transformation of digital banking, with special reference to the Unified Payments Interface (UPI).The findings reveal a substantial acceleration in both the volume and value of digital transactions, particularly through UPI, digital wallets, and instant interbank transfer systems such as NEFT, RTGS, and IMPS. The study also highlights various modes of digital payments and identifies key challenges affecting the sustainability and inclusiveness of digital banking in India.

Keywords: Digital Banking, Digital Payments, UPI, CAGR, Digital Transactions

1. INTRODUCTION

The foundation of digital banking in India dates back several decades; however, its rapid expansion began after 2016 with increased smartphone penetration and improved internet connectivity. The FinTech revolution has fundamentally reshaped traditional banking by integrating advanced technologies into financial services.In India, digital banking has witnessed remarkable growth driven by technological innovation, regulatory reforms, and proactive government initiatives. The Reserve Bank of India (RBI) has played a pivotal role in strengthening customer data protection, enhancing cybersecurity frameworks, mandating explicit customer consent, and ensuring robust two-factor authentication mechanisms. Additionally, the National Payments Corporation of India (NPCI) has significantly strengthened real-time transaction capabilities through platforms such as UPI, IMPS, AEPS, and RuPay.The demonetization initiative in 2016 marked a structural shift in payment behavior, accelerating digital transaction adoption across both urban and rural areas. Subsequently, the COVID-19 pandemic further intensified the reliance on contactless and remote banking services, reinforcing digital banking as an essential pillar of financial resilience.Among various digital payment platforms, UPI has emerged as the primary driver of digital payment growth in India. Introduced by NPCI, UPI simplified fund transfers by enabling instant, interoperable, and cost-effective transactions. These developments have not only increased transaction volumes but also promoted financial inclusion by integrating previously unbanked populations into the formal financial system.While existing studies primarily focus on adoption behavior and conceptual discussions, there remains a need for empirical evaluation of long-term growth trends. Therefore, this study analyzes the growth of digital payment services in India from 2020–21 to 2024–25, with special emphasis on UPI. Through statistical trend analysis and structural evaluation, the study aims to understand digital payment dynamics, various payment methods, and the challenges faced by government, businesses, and the public.

2. Review of Literature

The Indian banking system is undergoing a revolutionary change with digital payment at the wheel of this transformation. The rapid growth of digital payment has attracted significant growth attention. A literature review is essential in contextualizing research and identifying existing knowledge gaps. Numerous studies have examined digital banking from technological, behavioural, and policy perspectives. However because of space and contextual constraints, selective studies undertaken in recent years have been reviewed here under.

Singh and Malik (2019) emphasized that information technology serves as a game changer for banking. They observed that Indian banks possess robust technological foundations comparable to global standards; however, rural customers continue to face digital literacy challenges. Their study explored technological solutions implemented by banks and assessed customer adaptation in rural regions.

Mahindrakar (2020) highlighted the government's consistent efforts to promote digital inclusion through technological innovations such as Artificial Intelligence, Machine Learning, and biometric authentication. The introduction of platforms such as UPI, IMPS, and mobile banking facilities has enhanced user convenience and transaction efficiency.

Kaur et al. (2021) noted that post-demonetization India witnessed accelerated adoption of digital payment systems, including IMPS, RTGS, NEFT, e-wallets, Aadhaar Pay, debit cards, and UPI. Government initiatives such as "Digital India" significantly contributed to fostering a cashless economy and strengthening the FinTech ecosystem.

Gopinath et al. (2022) analyzed retail banking trends and examined digital transaction patterns before and after COVID-19. Their findings suggested a notable shift toward UPI, IMPS, and NFS transactions, reinforcing the inevitability of a cashless payment ecosystem.

Badak et al. (2023) explored India's digital payments boom, highlighting UPI's exponential growth and its socio-economic impact, particularly in rural areas. They also pointed out cybersecurity concerns and emphasized regulatory interventions by the RBI to maintain financial stability.

Govind et al. (2024) analyzed the transformative potential of the E-rupee and digital payment systems in enhancing transparency and financial inclusion. Their study suggested that widespread adoption of UPI and digital currency could reshape the financial ecosystem.

Dipak (2025) assessed growth trends and challenges in digital payments, identifying cybersecurity risks, low digital literacy, and infrastructure gaps as major concerns.

Aashima (2025) analyzed growth from FY 2017–18 to FY 2024–25 and found a higher CAGR in transaction volume compared to value, indicating a shift toward smaller, frequent transactions.

3. Research Gap

The review of literature reveals that most studies focus either on conceptual discussion of digital banking innovations or on customer satisfaction and adoption behavior. Limited research provides a consolidated long-term statistical trend analysis of digital banking growth in India. Few studies integrate secondary transaction data with policy evaluation. Moreover, comprehensive post-COVID empirical analyses using statistical tools remain limited.Therefore, the present study attempts to bridge this gap by conducting a systematic secondary-data-based trend analysis of digital banking growth in India, with particular emphasis on UPI and the challenges faced by the digital payment ecosystem.

4. Objectives of the Study

- To analyse the growth trends of digital payment transaction volume and value in India.
- To study the growth trend of UPI transaction volume and value in India.
- To measure the Compound Annual Growth Rate (CAGR) of digital payments and UPI transactions in terms of both volume and value.
- To determine the percentage share of UPI in total digital payments (volume and value).
- To examine the various methods of digital payments in India.
- To identify major challenges faced by the digital payment system in India.

5. Research Methodology

5.1 Research Design

The present study adopts a descriptive and analytical research design to examine the growth trends of digital banking in India by giving emphasis on UPI platforms.This study is completely based on secondary data. A quantitative trend analysis approach has been employed to evaluate changes in digital transaction volume and value over a period of five years after covid-19.

5.2 Sources of Data

The study is based entirely on secondary data collected from authentic and publicly available institutional sources. The data sources include:

- Publications and statistical databases of the Reserve Bank of India (RBI).
- Transaction statistics and annual reports of the National Payments Corporation of India (NPCI)
- Reports and policy documents of the Ministry of Finance, Government of India.
- Scholarly articles from Scopus and Google Scholar
- Industry whitepapers and handbooks (e.g., PwC, McKinsey, Worldlines and NITI Aayog)
- Press releases and fact sheets from the Press Information Bureau (PIB).

5.3 Period of Study

The study covers a five-year period from 2020-21 to 2024-25 with reference to COVID-19. The base year 2020 has been selected to capture the digital growth in India during the Covid-19 period.

5.4 Variables of the Study

The major variables considered in the study include:

- Volume& Value of digital payment transactions
- Volume and Value of UPI transactions
- UPI share percentage
- Growth rate indicators

5.5 Tools and Techniques of Analysis

The following statistical tools have been employed for analysis:

- Compound Annual Growth Rate (CAGR).

The CAGR was calculated for both total digital payments and UPI transactions to provide a standardized metric for measuring the exponential growth over the study period

- Trend Analysis

A year-on-year analysis of the total digital payments and UPI transactions was conducted to identify growth patterns and key trends in both volume and value.

- Percentage Growth Rate Analysis

The share of UPI transactions in the total digital payment volume was calculated year-wise to interpret the changing patterns of consumer behavior and the increasing dominance of UPI.

- Graphical Representation

Line graphs and charts are used to illustrate growth trends and structural transformation.

5.6 Hypotheses of the Study

The following null hypotheses are formulated for statistical validation:

H01: There is no significant growth in digital banking transactions during the study period.

H02: There is no significant influence of UPI transactions over digital payment.

5.7 Limitations of the Study

The study does notintegrate primary survey data rather it is completely basedon secondary data. The analysis depends on the accuracy of published institutional reports. This study is limited to examining only one mode of digital payment that is Unified Payment Interface, while excluding other digital payment methods such as Debit card, Credit card, Mobile Wallet, NEFT, RTGS Etc.

6. Data analysis and Interpretation

Objective-1:- To analyse the growth trends of digital payment transaction volume and value in India.

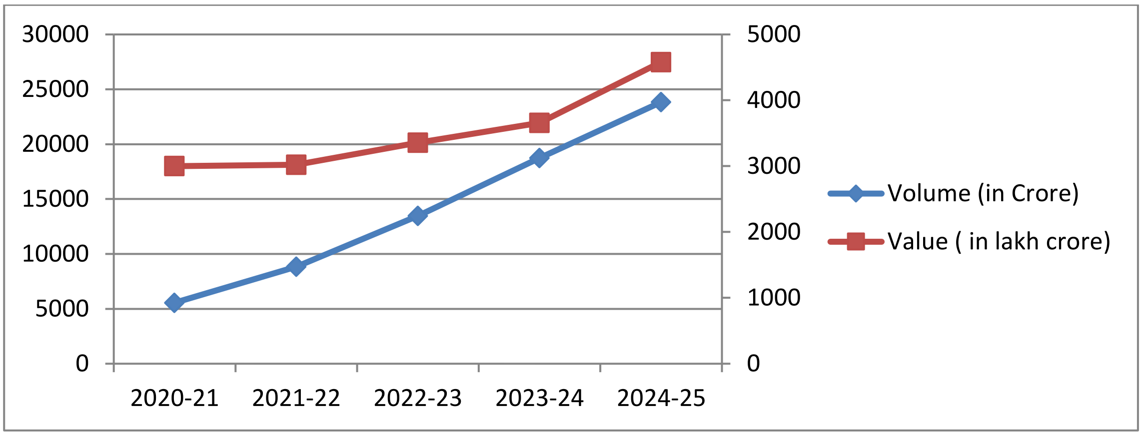
The data obtained from PIB & RBI shows a consistent upward trend in both the volume and value of digital Payment transaction in India from the financial year 2020-21 to 2024-25. This continue rise suggest increasing acceptance of users to digital payment during study period. Table -1 shows the digital payment transaction in India both in terms of volume and value.

Table-1:- Total digital payment transaction in India

Financial Year	Volume (in Crore)	Value (in Lakh Crore)
2020-21	5554	3000
2021-22	8839	3021
2022-23	13462	3355
2023-24	18737	3659
2024-25	23834	4580

Source: RBI reports, PIB & Ministry of Finance reports as of 31st March 2025.

Figure-1:Total digital payment in terms of volume and value in India



The table 1 and figure -1 shows that the total volume of digital payment in India increased 5554 Crores in the FY 2020-21 to 23834 Crore in 2024-25. The value of digital payment in India also increased from 3000 Lakh crore in FY 2020-21 to 4580 Lakh crore in FY 2024-25. This rapid growth is a positive indicator for economic growth of Indian banking industry. There are various factors featured behind the growth.

Objective-2 :- To study the growth trend of UPI transaction volume and value in India.

The overall digital payment system showed a magnificent growth in India during the study period, where UPI as a dominant platform. The Unified Payment System (UPI) is India's premier, real-time Digital payment system. Recently UPI launched new features such as UPI Circle, UPI Lite, Conventional UPI, UPI help assistant Etc. in the year 2025.

Table-2:- UPI transaction growth in India

Financial Year	Volume (in Crore)	Value (inLakh Crore)
2020-21	2732	49.3
2021-22	4597	84.7
2022-23	8411	139.1
2023-24	13116	200
2024-25	19035	233

Source: National Payment Corporation of India (NPCI), Official reports as of 31st March 2025.

Figure 2: UPI transaction growth both in volume and value in India

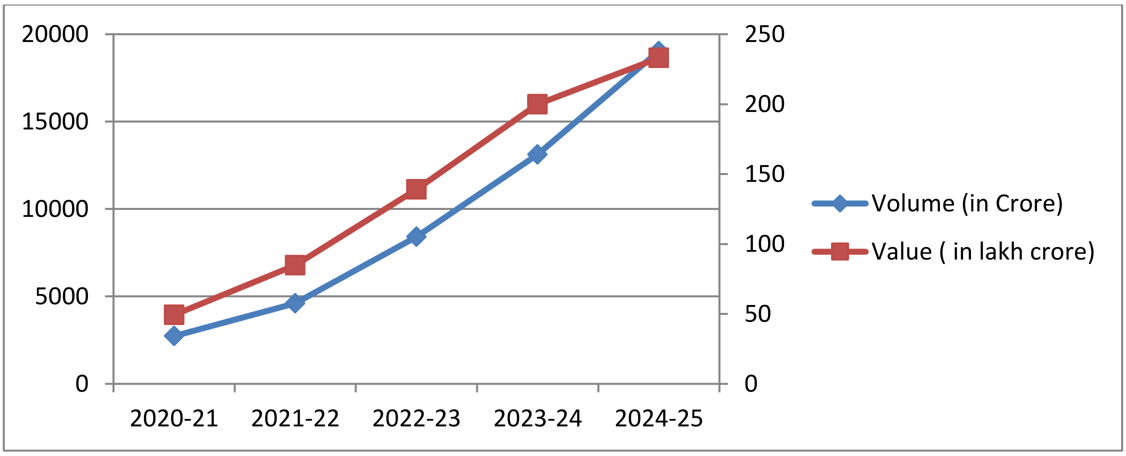


Table-2 and Figure-2 showcases UPI's high growth in volume from 2732 Crore in the FY 2020-21 to 19035 Crores in FY 2024-25. Similarly, the UPI transaction value rose from 49.3 Lakh Crore in the FY 2020-21 to 233 Lakh Crore in FY 2024-25. This highlights that both the volume and value of UPI transaction have marked a revolutionary change after COVID period.

Objective -3:- To measure the Compound Annual Growth Rate (CAGR) of digital payments and UPI transactions in terms of both volume and value.

Compound Annual Growth Rate (CAGR) is an indicative figure which indicates the growth rate over a period. Here we apply CAGR method to know the annual growth rate of digital payment transaction and UPI transaction both in terms of volume and value over a 5-year period.

Table-3:- CAGR of Digital payment and UPI both in volume and value

Metrics	CAGR
Total digital payment volume	33.81%
Total digital payment value	8.83%
UPI transaction volume	47.43%
UPI transaction value	36.42%

Author's own calculation

The Compound Annual Growth Rate (CAGR) figures indicate a strong and sustained expansion in digital payment transactions over the five-year period.The total digital payment volume recorded a CAGR of 33.81%, reflecting a substantial annual increase in the number of transactions. In contrast, the total digital payment value grew at a comparatively moderate CAGR of 8.83%, suggesting that while the frequency of transactions increased rapidly, the average transaction size may have declined over time.The growth is even more pronounced in the case of UPI transactions. The UPI volume registered an impressive CAGR of 47.43%, highlighting its rapid adoption and widespread acceptance among users. Similarly, the UPI value grew at a robust CAGR of 36.42%, indicating not only higher usage but also increasing monetary value being transacted through the platform. Overall, the data clearly demonstrate that UPI has been the primary driver of digital payment growth during the study period. The significantly higher growth rates of UPI compared to total digital payments suggest a structural shift toward real-time, mobile-based payment systems, reinforcing UPI's dominant role in the digital financial ecosystem.

Objective-4:- To determine the percentage share of UPI in total digital payments (volume and value).

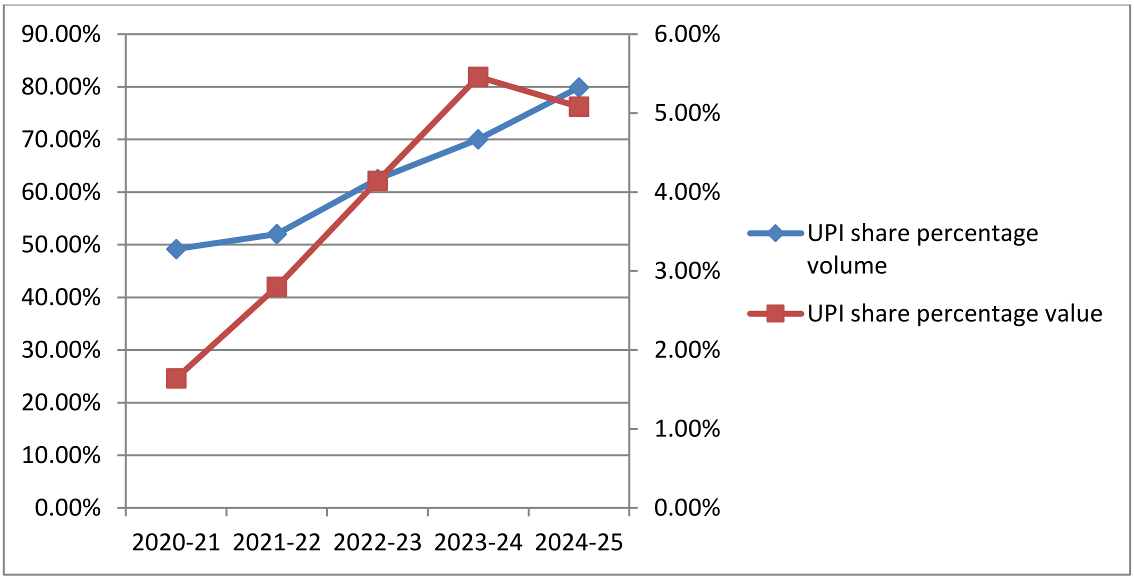
The growing prominence of UPI in the digital payments sector indicates a notable transformation in consumer behavior. Over time, UPI has not only increased in volume but has also emerged as the preferred method for both person-to-person (P2P) and person-to-merchant (P2M) transactions. By allowing real-time payment transfers between various bank accounts, UPI has redefined the payments ecosystem. As of now, around 85 percent of digital payment transactions in India are executed via UPI. According to the Reserve Bank of India's FY 2025 annual report, the achievement of India's Unified Payments Interface (UPI) has enabled the nation to secure a 48.5 percent share in the global market for real-time payments by volume.

Table-4:-UPI share percentage

Financial Year	Total digital payment volume	UPI transaction volume	UPI share percentage volume	Digital payment value	UPI transaction value	UPI share percentage value
2020-21	5554	2732	49.19%	3000	49.3	1.64%
2021-22	8839	4579	52.01%	3021	84.7	2.80%
2022-23	13462	8411	62.48%	3355	139.1	4.14%
2023-24	18737	13116	70.00%	3659	200	5.46%
2024-25	23834	19035	79.87%	4580	233	5.08%

Author's own calculation:

Figure 3: UPI share percentage both in terms of volume and value



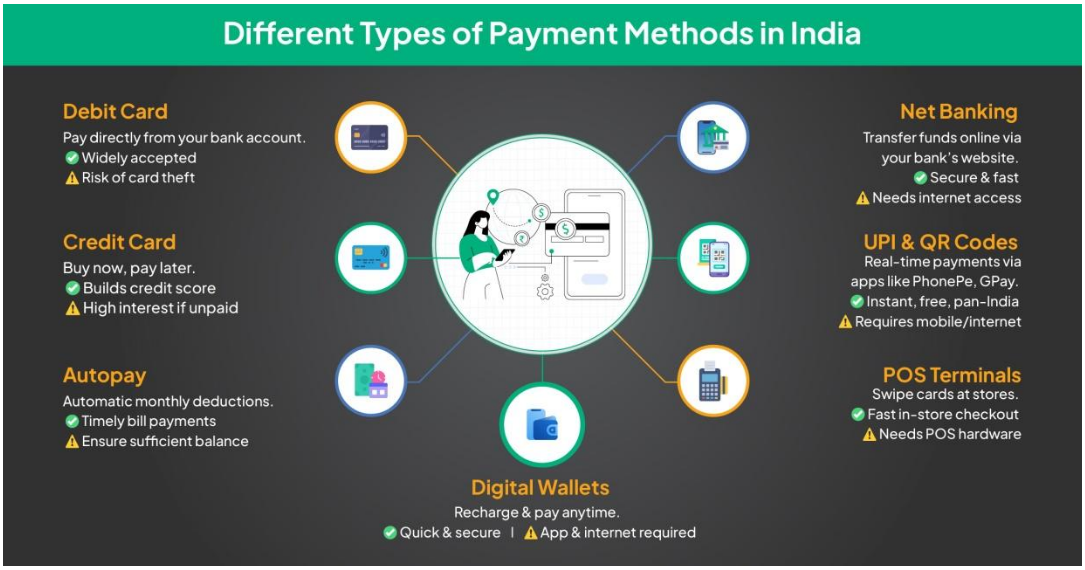
The table shows a strong and consistent expansion in digital payments from FY 2020–21 to FY 2024–25, with UPI emerging as the key driver of growth. Total digital payment volume increased significantly from 5,554 to 23,834, reflecting more than a fourfold rise in the number of transactions over five years, indicating rapid adoption and growing acceptance of digital payment systems. During the same period, UPI transaction volume grew even faster, from 2,732 to 19,035, resulting in its share of total digital transaction volume rising from 49.19 percent to 79.87 percent. This clearly shows that UPI has transformed from handling about half of all digital transactions to becoming the dominant mode, accounting for nearly four out of every five transactions. However, while UPI dominates in volume terms, its share in total transaction value remains relatively small. UPI transaction value increased from 49.3 to 233, and its value share rose from 1.64 percent to 5.08 percent, but this is still a modest portion of the total digital payment value, which grew from 3,000 to 4,580. This gap between volume and value suggests that UPI is primarily used for small and medium-sized retail transactions, whereas high-value transactions continue to be processed through other digital payment channels. Overall, the data indicates a structural shift toward high-frequency, low-value digital transactions and highlights the deepening penetration of digital payments across everyday economic activities.

Objective-5 :- To examine the various methods of digital payments in India.

Digital banking in India has transitioned from a cash-centric economy to a global leader in real-time transactions, propelled by the launch of UPI in 2016, the widespread adoption of smartphones, and supportive government policies. UPI serves as the main catalyst for the growth of the digital payment ecosystem in India. The recent surge in digital payments can be attributed to the concerted efforts of the government and various stakeholders. The International Monetary Fund (IMF) acknowledged UPI as the largest retail fast-payment system (FPS) globally by transaction volume in its June 2025 report on 'Growing Retail Digital Payments.' Additionally, according to ACI Worldwide report on 'Prime Time for Real-Time' 2024 , UPI holds approximately 49% of the global transaction volume in real-time payment systems. Overall, the UPI ecosystem has been a driving force behind the rapid expansion of digital payments in India.

Top Digital Payment Methods in India

- Unified payments Interface (UPI)
- Banking Cards
- Mobile wallets
- Internet and Mobile Banking
- Aadhar Enabled Payment system(AEPS)
- USSD(Unstructured Supplementary Service Data.
- BuyNow, Pay Later(BNPL)
- PoS Terminals
- Micro ATMs



Source: https://payu.in/blog/types-of-payment-methods-in-india/

Objective-6 :- To identify major challenges faced by the digital payment system in India.

Digital payment systems in India, while rapidly expanding, face major challenges centred on cybersecurity threats, including fraud and data breaches. Key hurdles also include poor rural internet connectivity, low digital literacy, and high cash dependency. Additionally, infrastructure limitations (like PoS, network issues), high transaction costs for merchants, and lack of system interoperability delay full adoption.

Major challenges in the Indian digital payment landscape include:

Major Challenges	Key Reasons
Cybersecurity and Fraud	• Rising instances of phishing • UPI-related scams • Unauthorized transactions
Digital and Financial Illiteracy	• Lack of knowledge
Infrastructure Gaps	• Poor internet connectivity
High Cash Reliance and Habit	• long-standing habits • lack of trust in digital systems
Merchant Costs and Adoption	• cost of installation • digital infrastructure cost
System Downtimes	• technical glitches • server down

7. Conclusion

The growth of digital banking in India, with reference to the Unified Payments Interface (UPI), represents a pivotal milestone in the nation's economic transformation over the last decade.UPI dominate Indian digital payment market holding over 80% share.The growth analysis of both volume and value of digital payment and UPI over five years revealed that the number of transactions using UPI is increased day by day as compared to the value. This shift from a specialized service to an essential aspect of daily financial transactions highlights a profound change in consumer behavior, characterized by an increased trust in digital platforms. Such progress not only showcases the resilience and adaptability of Indian consumers but also reflects the success of Government initiatives and technological advancements in cultivating a modern financial ecosystem.Driven by interoperability, ease of use, real-time settlement, and strong regulatory support, UPI successfully bridged gaps in financial inclusion and accelerated the migration from cash to digital transactions.Despite these advancements, the journey towards comprehensive digital banking is not without its challenges. Concerns surrounding cybersecurity, along with issues of digital and financial illiteracy and existing infrastructure gaps, pose significant obstacles that must be addressed to ensure sustainable growth and equitable access to digital payment systems for all citizens. Nevertheless, the impressive uptake of digital payment solutions underscores India's potential to emerge as a leader in the global digital finance landscape. The analysis of UPI as the dominant transaction platform reinforces the promise of a digitally connected financial future for India.

8. Findings

1. Exponential Growth & Market Penetration

UPI transaction volumes grew exponentially from its inception, reflecting widespread user acceptance across urban and rural demographics.

UPI handles over 80% of digital transactions in India, which reduced cash dependency.

2. Drivers of Adoption

Low barriers to entry: Users require only a bank account and basic smartphone to transact.

Interoperability: Seamless integration across multiple banks and wallets reduced friction.
Convenience & cost efficiency: Zero or minimal transaction fees attracted both merchants and consumers.

3. **Financial Inclusion**

UPI extended banking reach to previously underserved and rural populations through digital channels — narrowing the traditional divide between formal and informal financial participation.The Unified Payments Interface (UPI) has revolutionized India's economy, driving a massive shift to digital payment by promoting financial inclusion.
The COVID-19 pandemic acted as a catalyst for contactless payments, boosting digital adoption across all socio-economic sectors.

4. **Impact on Traditional Banking**

Commercial banks, compelled by UPI's success, have transformed their digital strategies and banks now can focus on their other services apart from basic cash service.
Traditional banking products are now more digitally integrated, leading to improved customer service and competitive fintech collaborations.

5. **Challenges Identified**

Cybersecurity concerns: Rise in fraud and phishing attempts necessitates stronger defence mechanisms.
Digital literacy gaps: Disparities persist, particularly among older and less educated users.
Infrastructure limitations: Internet and smartphone access still uneven in remote regions.

9. Suggestions

Digital payment systems can evolve into robust, inclusive platforms that not only meet the needs of consumers but also support the broader goal of financial inclusion and economic stability. Addressing these factors such as growth, development and security will contribute significantly to the sustainable success of digital payment systems in an increasingly digital economy.

Growth:

- Incentivize Adoption: Implement initiatives such as cashback offers, discounts, and rewards for users to encourage the use of digital payment systems, particularly among unbanked populations.
- Expand Service Offerings: Diversify services beyond transactions (e.g., microloans, insurance, savings accounts) to add value and encourage users to engage more with digital platforms. UPI services may be expanded to globally by partnering with foreign payment systems to promote interoperability.

Development:

- Infrastructure Improvement: Invest in robust digital infrastructure to enhance connectivity and reduce transaction failures, especially in rural and underserved areas.
- Financial Literacy Programs: Provide education and training initiatives aimed at improving digital and financial literacy

Security:

- Advanced Security Measures: Implement multi-factor authentication, biometric verification, and encryption protocols to safeguard transactions and user data against cyber threats.
- Consumer Protection Policies: Establish clear policies and support mechanisms to protect users from fraud and unauthorized transactions, ensuring they can report issues easily and receive prompt assistance.

- Strengthen Data Privacy and Governance: As transaction data volumes grow, clear data protection standards are essential for aligning UPI data policies with evolving digital privacy regulations, ensuring transparent data usage policies for customers and mandate strong consent-based data sharing frameworks.
- Ensure transparent data usage policies for customers.

Reference

1. Mahesh, A. & Ganesh Bhat, (2021). Digital Payment Service in India - A Case Study of Unified Payment Interface. International Journal of Case Studies in Business, IT, andEducation (IJCSBE), 5(1), 256-265. DOI: http://doi.org/10.5281/zenodo.5091207.
2. Jain,Aashima,(2025),Digital payment growth in India. International journal of research in finance and management (IJRFM) 8(2):444–449.DOI: https://www.doi.org/10.33545/26175754.2025.v8.i2e.571.
3. Das, Dipak,(2025), The rise of digital payment systems in India: Trends, challenges, and future prospects (IJRM)7(2):1150 1154.DOI:https://www.doi.org/10.33545/26648792.2025.v7.i2m.579. https://www.pwc.in/assets/pdfs/indian-payment_handbook-2024.pdf.
4. Press Information Bureau (PIB). Digital payments in India - Year-wise data [Internet]. Government of India; 2025. Available from: https://pib.gov.in/.
5. Reserve Bank of India. RBI annual report 2024-25. RBI Publications; 2025.
6. National Payments Corporation of India. UPI product statistics and reports; 2025. https://www.npci.org.in.
7. Ministry of Electronics and Information Technology (MeitY). Digital India progress report. Government of India; 2024.
8. Singh, R., & Malik, G. (2019). Impact of digitalization on Indian rural banking customer: with reference to payment systems. Emerging Economy Studies, 5(1), 31-41.
9. Mahindrakar, S. (2020). Technological aspects and digital finance uprising in India. International Journal for Research in Applied Science and Engineering Technology, 8(IX), 856-859.
10. Kaur, N., Sahdev, S. L., Chhabra, M., & Agarwal, S. M. (2021, September). FinTech Evolution to Revolution in India-From Minicorns to Soonicorns to Unicorns. In 2021 9th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO) (pp. 1-6). IEEE.
11. Gopinath, R., Vevek, S., &Sivaprakkash, S. (2022). A paradigm shifts in digital payment transactions: UPI, IMPS & NFS before and after covid-19 to seize opportunity of cashless economy in India. Central European Management Journal, 30(4), 915-923.
12. Badak, S., Kolte, V., Agrawal, M., & Gupta, S. (2023). Revolution of digital payment in India. Journal of Mobile Computing, Communications & Mobile Networks, 10(3), 29-37.
13. Govind, H., Nayan, A., & Gupta, P. (2024). The Evolution of Digital Payments: UPI, E-Rupee and the Future of Currency-in the Context of Urban Patna. International Research Journal on Advanced Engineering and Management (IRJAEM), 2(03), 495.
14. Bansal A, Sahdev S(2024)Digital Banking and the UPI Revolution in India Anusandhan vallari Vol 2024, No.1 December 2024 ISSN 2229-3388.