

## Unified Payments Interface (UPI) in India: A Review of Adoption, Impact, and Challenges

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### ABSTRACT

**Purpose:** This study reviews the Unified Payments Interface (UPI) in India, analyzing its adoption, impact, and challenges. It evaluates its global reach and identifies factors promoting or hindering its global adoption, providing guidance for policymakers and academic researchers.

**Design/Methodology/Approach:** The study uses a qualitative and analytical review approach, analyzing secondary data from scholarly articles, official documents, policy assessments, and industry resources, focusing on the adoption, impact and challenges of the Unified Payments Interface.


**Findings:** UPI has significantly improved financial inclusion and digital payment ease in India, particularly after demonetisation and under the Digital India mission. However, challenges like digital literacy shortages, cybersecurity risks, and infrastructural limitations persist, especially among rural communities, the elderly, and low-income consumers. The study recommends policy interventions, enhanced digital literacy, and app design innovation to bridge usage gaps and build trust.

**Originality/Value:** This paper presents distinct viewpoints by examining the adoption of UPI, its significant impact on digital payments, and the elements that enhance its increasing importance among various user groups.

**Paper Type:** Review of Literature

**KEYWORDS:** Unified Payment Interface | UPI | Digital Payments | Digital Transactions | Financial Inclusion | Cashless Transactions

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## Introduction

The Indian population has historically preferred traditional payment methods like cash, cheques, and bank drafts. For decades, these instruments dominated India's financial landscape due to their familiarity, perceived reliability, and the absence of accessible digital alternatives. However, the 21st century is said to be the century of a global shift towards digitisation that is fundamentally transforming the initiation, execution, and completion of financial transactions. With continuous refining and evidence-based policy actions, certain nations, including India, have rapidly built advanced digital payment systems (Rastogi et al., 2021). In India, a major step toward this transformation was the launch of the *Digital India* initiative in 2015, which aims to bridge the digital divide and enhance access to financial technology across both rural and urban populations. This initiative played a crucial role in fostering an environment that encouraged innovation within digital payment systems. It also played a significant role in the success of fintech start-ups and mobile payment applications such as Paytm, Freecharge, PhonePe, Google Pay, SBI Pay, BHIM, and Amazon Pay that enabled consumers to make payments digitally through their mobile phones at retail outlets and internet websites. By enabling convenient, real-time transactions, these applications have significantly transformed consumer behaviour and reshaped payment habits, accelerating the adoption of digital financial services across diverse segments of the population (Neema & Neema, 2018; Verma et al., 2024).

Among the most revolutionary moves to emerge from India's digital momentum is the Unified Payments Interface (UPI) that was launched in April 2016 by the National Payments Corporation of India (NPCI) under the regulation of the Reserve Bank of India (RBI). UPI has revolutionized India's digital payment ecosystem by facilitating seamless, real-time, peer-to-peer (P2P) and peer-to-merchant (P2M) transactions through one mobile platform, while only a virtual payment address or QR code required for transactions (Joshi, 2024; George et al., 2023). Led by the momentum of post-demonetisation reforms and the broader Digital India objectives, UPI has emerged as a key element of India's transition to a less cash-driven economy. The 2016 demonetization drive significantly accelerated the adoption of digital payment systems across diverse socio-economic groups. By 2022–2023, over 13,462 crore transactions had been conducted through UPI, evidencing its critical contribution in shaping India's payment ecosystem and increasing financial inclusion (Kumari, 2024).

The adoption of UPI has seen remarkable growth across various regions. Its most prominent accomplishment is the expansion of digital payment infrastructure to marginalised and underbanked populations, especially through smartphone-based platforms. This has facilitated equitable access to formal financial systems and improved economic engagement among formerly left out populations (Raut, 2024; Sonali & Kamaraj, 2024). UPI transaction volume and value are expected to continue their upward trend in 2025. The platform had a 35% increase in transaction volume and a 22% increase in value over the previous year. This rise is fuelled by increased adoption in smaller cities and the platform's expanding global presence (Hindustan times, 2025). There are varying usage patterns among the users at the bottom of the pyramid, as well as across income levels, geographies, and educational backgrounds (Joshi, 2024). Moreover, issues that impact user trust and system strength include data privacy, digital literacy, cybersecurity, and infrastructural limitations (Trivedi et al., 2024).

This review paper uses both empirical and theoretical research from the past to provide an entire view of how UPI was formed, how users experience it, how individuals accept it, and its effects on society and the economy. Additionally, it outlines the gaps in the current literature, which paves the way for future research and policy action.

## Research Methodology

This study follows a qualitative and analytical approach, relying exclusively on secondary data to examine the evolution, adoption dynamics, and socio-economic impacts of India's Unified Payments Interface (UPI) experience. The study design consists of a narrative literature evaluation of academic articles, industry reports, government publications, and conference papers released during the past decade were examined to get comprehensive insights. The data was obtained from esteemed academic databases such as Google Scholar, Scopus and IEEE Xplore, and also from the regulatory and policy repositories including the National Payments Corporation of India (NPCI), the Reserve Bank of India (RBI), and the Ministry of Finance. The keywords included in the literature search were "Unified Payments Interface", "UPI in digital payments", "cashless economy India", "digital banking", and "UPI adoption". The extensive range and thoroughness of the secondary sources provided a comprehensive and multifaceted view of UPI's impact on India's digital revolution.



## Literature Review

**Table 1:** Review of Literature

Authors & Year	Objectives	Research Methodology	Findings
Chanda (2023)	The study investigates Indian fintech landscape, digital transactions, UPI market presence, consumer behaviour, and government initiatives' impact on the sector. It aims to bridge knowledge gaps, understand consumer preferences, and assess the impact of UPI applications for cashless transactions.	The study used a Consumer Dipstick survey to gather data on consumer behaviour regarding UPI applications in India. It included 300 participants from different age groups and states, analyzing data from the National Payments Corporation of India to understand its rapid growth.	The Indian government's fintech initiatives, particularly the introduction of UPI services, have significantly impacted the industry. The study highlights the role of demonetisation and the COVID-19 pandemic in accelerating UPI adoption among consumers. The research methodology involved secondary research to analyze UPI's impact on financial transactions in India.
D & B (2024)	The research investigates UPI adoption among businesses in Ballari District, Karnataka, focusing on factors driving integration and proposing a model to assess behavioural intention to use UPI.	A survey of 415 smartphone-based UPI users was conducted using the UTAUT model, utilizing a structured questionnaire and multivariate analysis. Factor analysis and the Varimax rotation method were used to extract and validate constructs, providing insights for stakeholders.	The study reveals that UPI adoption is influenced by perceived value, perceived risk, and add-on benefits, with add-on benefits being the most significant factor. The survey revealed four factors accounting for over 60% of the total variance.
Rastogi et al. (2021)	The paper studies the impact of UPI on financial literacy, financial inclusion, and economic development of the poor in India.	The study uses structured equation modeling to investigate relationships among constructs, using a structured questionnaire and unobserved variables for measurement. PLS SEM is applied to constructs with single indicators, data collected from rural or semi-urban people of Maharashtra, India.	The study reveals that UPI significantly enhances financial literacy among India's poor, promoting financial inclusion and economic development. It highlights the need for effective policies to effectively utilize UPI for financial inclusion.
Kakade & Veshne (2017)	The research aims to enhance security, convenience, and support e-commerce growth in India by providing instant payments via mobile and web applications, analyzing payment modes, and understanding challenges in India's e-banking sector.	The study uses a conceptual and descriptive research methodology to analyze UPI and payment systems, comparing data from government bodies across different payment modes. It reviews literature on wallet interoperability and UPI's role in mobile payments, using statistics to understand relevant issues and outlining operational steps.	UPI, a mobile payment system, is expected to reduce cash payments, promote a cashless economy, and enhance transaction transparency. It will make smartphones the primary payment device, reducing costs for banks and users, and enhancing digital transaction efficiency in India.

Philip (2020)	The research examines the impact of UPI on customer satisfaction, compares UPI services to traditional ones, explores usage, and investigates the relationship between education and occupation.	The researcher utilized mean statistics to analyze UPI facilities, F-Test and ANOVA to assess differences among respondents, and regression analysis to interpret data, aiming to identify customer preferences and satisfaction regarding UPI.	The study demonstrates that UPI has a good influence on consumer happiness, with education playing a crucial role in its acceptability. UPI services are viewed as more beneficial than conventional ones, and educated people are more inclined to use them.
Dam & Babu (2024)	The study examines India's mobile payment applications, focusing on Google Pay, PhonePe, and Paytm, analyzing customer perception, income, education, and transaction propensity, and highlighting the need for strategic merchant-marketer relationships.	The study used field observations to collect data from clients using mobile payment apps in eight urban centres. Total 384 samples were collected, with 48 from each. Statistical techniques like ANOVA and Chi-square tests were used, and secondary data was also gathered.	The study reveals customer perception and adoption of mobile payment applications in India, influenced by income, education, age, and app choice. It suggests strategic merchant-marketer relationships, but acknowledges a gap in understanding merchants' perceptions.
Bhat & Singh Chauhan (2024)	The paper aims to study trust factors in UPI adoption in India, focusing on middle and low-income communities.	The study uses a qualitative analysis to understand user trust in UPI adoption, utilizing surveys in Delhi NCR, Meerut, and Sonapat. Random sampling was used to gather responses from consumers and retailers, with two sets of questions designed to explore trust variables.	The study reveals trust as a key factor in India's adoption of digital mobile payments through UPI. Demographic factors also influence adoption, with perceived ease of use and usefulness being key factors. Gender-specific willingness to learn mobile payment technology is evident, but there's a bias towards users with better access to digital infrastructure.
A. & Bhat (2021)	The study examines the growth and prospects of the Unified Payment Interface (UPI) in the digital payment ecosystem, assessing its position, and conducting a SWOT analysis.	The paper uses an exploratory research method to gather data from secondary sources, including government reports and published research, and uses a SWOT analysis to evaluate the strengths, weaknesses, opportunities, and threats of the Unified Payment Interface (UPI) in retail digital payments.	The paper discusses digital payment options like UPI, credit cards, and mobile banking, highlighting their growth due to smartphone usage and cashless transactions. UPI 2.0 enhances security and allows overdraft accounts. The study also highlights UPI's strengths, weaknesses, opportunities, and threats in the digital payment landscape.
Chaterji & Thomas (2017)	The study investigates digitalization's impact on financial inclusion and black money in India, focusing on smartphone adoption and the utility of the Unified Payment Interface (UPI) in the country.	The study uses an explorative approach, analyzing relevant issues from government and financial regulators, e-journals, articles, and press releases, utilizing statistics from RBI and TRAI.	The study highlights the role of UPI in enhancing small businesses' payment processes, improving customer trust, and facilitating interoperability among mobile wallets. It also discusses the potential for increased tax compliance with electronic transactions.



Mathew et al (2024)	The study examines UPI's role in the digital payment ecosystem, its growth over the past five years, and its potential as a driving force in the digitalized economy.	The study uses secondary data from RBI database and NPCI reports to analyze UPI transaction growth from 2018 to 2022, focusing on digital payment insights.	The study reveals UPI transactions surged from 2016 to 2024, reaching 108 billion annually. Driven by digitalization, government policies, and mobile penetration, UPI transformed from a peer-to-peer tool to a comprehensive payment infrastructure, impacting retail and user payment patterns.
Edburg et al (2024)	The study analyzes user behaviour towards UPI apps, aims to mitigate fraud risks, enhance safety measures, and promote financial inclusion in India. It explores decision-making processes, emphasizes self-efficacy, and provides insights for policymakers and businesses.	The study used descriptive statistical techniques to analyze user behaviour on UPI payment applications, using a structured questionnaire to gather data on perceived safety, security, and behavioural intention.	The study highlights the importance of perceived safety, security, convenience, and fraud risk in influencing UPI app usage intentions. It emphasizes the need for effective grievance redressal systems, improved security measures, and higher user satisfaction to encourage adoption and recommendation of UPI.
Barthakur & Rajkonwar (2021)	The study aims to assess the AC & ABC Scheme's impact on agripreneurs and farmers, identifying tangible and intangible benefits, understanding social benefits, and identifying new e-Wallet Service Platforms.	The study uses Cobb-Douglas production function, Vector Autoregression, Unit Root and Granger Causality tests, descriptive and inferential statistics, a Likert 5-point scale for intangible benefits, and an econometric model to analyze the impact of agripreneurs' extension services.	The study highlights the importance of payment platforms in India for improving customer service and convenience, with increased user engagement leading to e-Wallet adoption. It emphasizes the need for effective digital payment systems for merchants in Dibrugarh.
Gupta et al (2023)	The research explores the impact of UPI experiences on Indian CBDC usage behaviour, examining the relationship between technology, cognitive factors, and behavioural intentions, and hedonic motivation.	The study collected data from CBDC users using convenience and reference sampling methods, with 547 completed responses from online and merchant locations, using a partial least squares structural equation model for analysis.	The study reveals that hedonic motivation and performance expectancy significantly influence users' intentions towards CBDC usage, with prior UPI usage negatively affecting this relationship. Social influence also significantly influences CBDC usage behaviour, though limitations include a pilot launch in a few cities.
N et al (2024)	The study investigates the impact of perceived usefulness, ease of use, and security on consumer adoption intentions of UPI payments, addressing the research gap in this area.	The study used a structured questionnaire to gather primary data from 124 respondents using UPI or potential users. The questionnaire included demographic questions and a perceived security scale, rated on a 5-point Likert scale.	The study reveals that perceived usefulness, ease of use, and security are key factors influencing UPI payment adoption intentions. High adoption rates are observed, with male consumers more likely to use UPI technology. Enhancing these factors could encourage adoption.
Gulia & Singh (2023)	The study aims to assess digital finance awareness among Generation-Y and Generation-Z, examining consumption patterns, emotional biases, and leadership concepts in the Indian capital market, comparing optimization models.	The SERVQUAL service measurement theory was used to analyze perceived service quality factors in a cross-sectional, quantitative survey conducted in NCR, India, involving 300 respondents from various OPDs and 283 valid responses, using purposive sampling and SPSS 20.	The study reveals significant differences in benefits for married and single health tourists, as well as health outcomes between foreign and domestic tourists. It also highlights the low impact of stress on employee satisfaction and job turnover intention in the banking sector. The research also explores digital financial awareness differences between Generation-Y and Generation-Z.

Goel & Sharma (2024)	The study aims to understand user perception of UPI services and analyze the impact of various factors on their usage.	The study used a descriptive research methodology, collected data through individual surveys by using a self-structured questionnaire from UPI users. Factor analysis was applied to identify significant factors, and the sample was selected without bias for accurate information.	The study explores factors influencing user perception of UPI, including usefulness, convenience, ease of use, resource saving, and time saving. It found a positive attitude towards UPI services, with ease of use and various offers being significant factors influencing adoption.
Shanmugasundaram (2024)	The study aims to explore the factors influencing Unified Payments Interface (UPI) adoption among senior citizens in India, examining both facilitators and challenges, and proposing recommendations for FinTech providers to improve user experience.	The study uses qualitative interviews and thematic analysis to gather in-depth insights from participants, focusing on factors influencing UPI adoption among senior citizens in India. Thematic analysis is used to identify and categorize themes, while interview questions are developed based on UTAUT2 constructs.	The study reveals factors affecting senior citizens' adoption of UPI, including low self-efficacy, security concerns, and complexity. Trust, perceived usefulness, and social influence are key determinants. The study emphasizes the need for addressing language barriers and lack of support is crucial.
Fahad & Shahid (2022)	The study uses DOI theory to investigate factors influencing UPI adoption and recommendation intentions among Indian customers, examining usage intention, satisfaction, and recommendation, and validating its applicability in mobile payment context.	The study used a questionnaire to gather demographic data and used IBM SPSS Statistics 20.0 and AMOS 23.0 for data analysis. A two-step approach was used to assess model fit indices, and Harman's single factor test was used to check for common method bias.	The study reveals that relative advantage, complexity, and observability significantly influence UPI adoption intentions, with higher intention correlated with higher recommendation intentions. Satisfaction among UPI users also influences recommendation intentions, validating DOI theory's explanation.
Gochhwal (2017)	The paper aims to explore the technology behind UPI, its potential to enhance digital payment acceptance in India, and its potential to promote financial inclusion through innovative business solutions.	The paper reviews UPI technology and architecture, tracing India's payment system evolution, focusing on cost, ease of use, settlement times, and security features, using empirical and theoretical literature review.	The paper highlights UPI as a transformative mobile-centric payment system in India, with potential for universal digital adoption. It emphasizes its architecture, security features, biometric authentication, instant transactions, financial inclusion, and modular API architecture. The research suggests developing merchant-centric UPI solutions will enhance user adoption and expand the digital economy.
Kumari (2024)	The paper aims to identify the factors influencing digital financial service adoption, identifying research gaps and systematically representing existing research on these factors.	The study uses a systematic literature review to analyze factors influencing digital financial service adoption, utilizing secondary sources like journal articles and databases for data collection.	The study reveals factors influencing digital financial service adoption, such as compatibility, cost, and infrastructure. It suggests ease of use and usefulness positively influence mobile banking and internet banking adoption, while security and privacy concerns negatively impact them.



Pandey et al (2024)	The study explores factors influencing the adoption of Social Media Payment Platforms (SMPP), reviews previous research methodologies, identifies gaps in existing literature, and synthesizes findings from 2013-2024.	The study uses a systematic literature review (SLR) methodology to analyze previous research on SMPPs, using the PRISMA Protocol and TCM framework. Data collection involves survey techniques, with PLS-SEM and regression techniques used.	The Technology Acceptance Model (TAM) is the most commonly used framework in SMPP research, with 30 out of 43 studies using it. Motivators for adoption include perceived usefulness and effectiveness, while inhibitors include perceived risk and financial analytics.
Wadhwa et al (2022)	The study investigates consumer perception of UPI in Raipur City, examining variables influencing practices, identifying issues, and examining digital payment frequency across age and income groups.	The study uses a mixed-method approach, involving surveys and interviews, to gather data from Raipur city consumers. A structured questionnaire will be distributed to a diverse sample, while in-depth interviews will provide qualitative insights.	The study explores consumer perceptions of UPI in Raipur, India, focusing on factors like ease of use, security, transaction speed, and familiarity, using a mixed-method approach and assessing digital literacy.
Joshi (2024)	The study aims to investigate factors influencing UPI adoption among BOP segment users, validates contextual determinants, and uses qualitative exploration to enhance awareness and address barriers.	The research used a mixed method approach, including telephonic interviews with UPI users from the BOP segment. Thematic analysis was conducted using inductive and deductive techniques. A questionnaire was developed, validated through a pilot study, and structural equation modeling was used to analyze responses from potential UPI users.	The study reveals that perceived security risk negatively impacts BOP user intentions towards UPI adoption, while knowledge positively influences intentions. Social influence and performance expectancy are significant factors.
Dev et al (2024)	The study inquires the impact of UPI on individual spending behaviour, financial transactions, and user experience, offering design recommendations for UPI app developers.	The study used a mixed-method approach, collecting data through surveys and interviews, to examine the impact of UPI on spending behaviours. It collected 276 responses and 235 as valid responses, aiming to provide design recommendations for UPI app developers.	The study revealed that 75% of participants in India increased spending due to UPI's intangible nature, with 74.2% acknowledging this. Users experienced psychological shifts, overspending, and regret. The research highlights UPI's significant impact on Indian spending behaviour.
Kumar et al (2022)	The study aims to explore UPI's growth, global reach, barriers to adoption, consumer satisfaction, security, financial inclusion, and Covid-19 pandemic impact on India's mobile payment systems.	The study examined scholarly material published since UPI's establishment in April 2016 using the Scopus database. It identified 14 peer-reviewed publications and reviewed official policy documents, public reports, and research from national and international organizations. Data was gathered from government websites and research firms.	The study highlights UPI's rapid growth in India, outperforming other digital payment methods, and its lower transaction cost. It identifies challenges like security, privacy, and interoperability, and factors influencing adoption include visibility and consumer innovation. UPI has expanded globally, with plans for ten more countries.
Rupani et al (2023)	The research investigates consumer perceptions of online banking, identifying usage frequency, reasons, and issues encountered while using this service.	The study used a questionnaire to gather data from 100 respondents, analyzing consumer preferences and challenges in cashless transactions. It employed both qualitative and quantitative research methods, using Multiple Regression Analysis and reviewing existing literature.	The study reveals privacy concerns and usage barriers hinder UPI usage among consumers, with satisfaction mainly expressing satisfaction with online banking. Security concerns persist, server issues affect growth, and cashless transactions are growing.

Bera & Li (2024)	The paper examines the transformative impact of UPI on India's payment systems post-demonetization, evaluating its role in promoting a cashless economy, focusing on ease of use and security.	The research used secondary data to analyze UPI's evolution and impact in India, comparing it to other global digital payment systems. It used critical review, synthesis, and comparison techniques, but acknowledged limitations in its methodology, impacting empirical insights.	The study highlights UPI's role in India's cashless economy, increasing digital transaction volumes and values, supporting financial inclusion, reducing costs, lowering entry barriers for small merchants, and enhancing transparency and reducing corruption in financial activities.
Deshmukh (2023)	The research aims to assess consumer satisfaction with UPI and to examine digital payment system knowledge.	The study uses a mixed-methods approach, incorporating interviews, surveys, and secondary data analysis, to assess consumer satisfaction with UPI across various dimensions.	A majority of 577 (96.2%) find UPI useful, with Phone Pay being the primary app used. 97.7% believe UPI is better than traditional systems. Most respondents use 2-3 UPI apps, with convenience and various offers being key reasons. However, 80.8% experienced transaction failures and 56.8% received fraudulent phone calls.
Sonali & Kamaraj (2024)	The study examines UPI transactions in India, assesses respondents' awareness in Kelambakkam, and investigates customer satisfaction related to these transactions.	The study used proportionate stratified random sampling techniques in the Kelambakkam region, selecting 140 respondents, representing 30% of the population. Primary data was collected through structured interviews, while secondary data was sourced from the RBI Report.	The study found no significant change in customer satisfaction or awareness of UPI transactions, emphasizing their importance in modern banking and commerce, as they contribute to digitization and financial inclusivity.
Raut (2024)	The paper explores India's digital payments landscape, government initiatives, challenges, and prospects, emphasizing the need for enhanced digital literacy and understanding of various payment methods post-COVID-19.	The paper explores the Digital Payment system in India, focusing on the National Automated Clearing House (NACH), FASTag for cashless toll payments, various digital payment methods like UPI, mobile wallets, Aadhar-enabled Payment System, RuPay card, CTS, and UPI 123PAY.	The Indian economy is transitioning towards a cashless economy, boosted by COVID-19 and digital payment methods. However, challenges include inefficiencies and adoption issues. Government initiatives and enhanced digital literacy are crucial for widespread adoption.

Source: Author's Own

## Conclusion

The evolution of the Unified Payments Interface (UPI) has redefined the digital payments landscape in India, making it a global benchmark for mobile-based financial transactions. This review has synthesized findings from a broad spectrum of studies, highlighting UPI's transformative impact on financial inclusion, transaction convenience, and consumer behaviour. UPI has successfully bridged gaps in accessibility, enabling even small merchants and underserved populations to participate in the formal digital economy (Rastogi et al., 2021; Sonali & Kamaraj, 2024). The review indicates that UPI adoption is shaped by multifaceted factors, including perceived usefulness, ease of use, security, trust, and demographic attributes such as age, income, and

education (Trivedi et al., 2024; George et al., 2023). Add-on benefits like cashback offers and low transaction costs further accelerate adoption, particularly among younger and tech-savvy users (Joshi, 2024). Notably, factors like perceived security risk and complexity continue to act as barriers, especially for users at the bottom of the pyramid (BOP), senior citizens, and rural populations (Verma et al., 2024).

The post-demonetization era, combined with government-led initiatives such as Digital India and PMJDY (Pradhan Mantri Jandhan Yojna), catalyzed the rapid scaling of UPI. The platform now records over 9–10 billion transactions monthly, demonstrating its scalability



and deep market penetration (NPCI, 2023). UPI's evolution from a peer-to-peer payment tool to a comprehensive payment ecosystem—including features like UPI 2.0, UPI Lite, and biometric authentication—has strengthened its role in financial modernization (Kumari, 2024). However, significant challenges remain in adoption and continuous usage of UPI that includes cyber fraud, server downtimes, limited digital literacy in rural areas, and concerns about data privacy (Trivedi et al., 2024; Raut, 2024). Moreover, the psychological and behavioural shifts associated with digital payments—such as impulsive buying and overspending due to UPI's intangible nature raise critical questions about financial discipline and digital responsibility (Bera & Li, 2024). From a policy and academic perspective, this review underscores the importance of targeted financial literacy programs, robust cybersecurity frameworks, and inclusive design thinking to expand UPI's reach. While the system's architecture supports inter-operability, innovation, and low-cost financial access, future research should explore emerging areas such as blockchain integration, AI-driven personalization, and real-time grievance redressal mechanisms.

In conclusion, UPI has played a pivotal role in democratizing access to digital finance in India, setting a precedent for developing economies aiming to leapfrog traditional banking infrastructure. As UPI continues to evolve, a collaborative effort involving government agencies, fintech developers, academia, and users is essential to realize its full potential in promoting a transparent, inclusive, and digitally empowered economy.

## Future Scope

The Unified Payments Interface (UPI) has already revolutionized the digital payments ecosystem in India, but there remains considerable scope for future research and development. An essential focus is on strengthening fraud detection systems by incorporating real-time applications driven by artificial intelligence (AI) and natural language processing (NLP) (George et al., 2023). The increasing adoption of UPI, particularly across various socio-economic segments, necessitates a thorough exploration of users' perceptions, trust, and financial behaviours across different demographics. This includes comparisons between urban and rural populations, youth and elderly users, as well as those with higher education levels versus those with lower literacy rates (Trivedi et al., 2024; Raut, 2024). Investigating the impact of financial literacy programs and digital awareness campaigns on UPI adoption would offer valuable insights for policy shaping (Sonali & Kamaraj, 2024). There is also potential to examine the influence of UPI on micro-entrepreneurs, small merchants, and the informal economy, which are critical components of India's financial landscape (Rastogi et al., 2021). Further, future studies can explore blockchain integration, voice-based UPI interfaces, and offline payment solutions like SMS-based transactions to improve UPI's accessibility in regions with low internet

penetration (Joshi, 2024). Ultimately, conducting longitudinal and comparative studies may offer an understanding of the way UPI influences spending patterns, saving behaviour, and credit dependency as time evolves (Bera & Li, 2024).

## Limitations

This study relies on secondary data sources, which limits the findings on the adoption, impact, and challenges of UPI in India. The study also lacks any primary data-gathering methods, like surveys, interviews, or focus groups. Consequently, the conclusions are constrained by the scope and dependability of public data and may not reflect real-time user experiences, qualitative behavioural insights, or the emerging dynamics of consumer trust. The absence of standardised assessment frameworks and cross-sectional information further limits the ability to draw causal inferences or predict long-term trends. Thus, mixed-method and longitudinal research designs are essential to understand the role of UPI in India's financial landscape better.

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## Annexure 17.1.6

Submission Date	Submission Id	Word Count	Character Count
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A-Satisfactory (0-10%)  
 B-Upgrade (11-40%)  
 C-Poor (41-60%)  
 D-Unacceptable (61-100%)

### Reviewers Memorandum



**Reviewer's Comment 1:** The manuscript addresses a highly relevant and contemporary issue by reviewing the adoption, impact, and challenges of the Unified Payments Interface (UPI) in India. The paper is well-structured, covering introduction, literature review, methodology, and implications. The inclusion of multiple studies and references provides a strong foundation. However, the narrative is at times more descriptive than critical and more emphasis on behavioral finance perspectives could enrich the discussion.

**Reviewer's Comment 2:** The study shows extensive use of secondary sources, compiled from academic databases, government reports, and industry data. The literature review section is comprehensive, reflecting the wide coverage of UPI adoption factors, user trust, and financial inclusion. However, clarifying the time horizon of reviewed studies would strengthen the paper's reliability and replicability.

**Reviewer's Comment 3:** The study makes a meaningful contribution by synthesizing UPI's transformative role in India's digital payments ecosystem. It provides broader implications for financial inclusion and economic development. The study highlights policy gaps and future research directions. However, the analysis remains narrative, with limited comparative or quantitative evidence. Incorporating empirical insights and data presentation in table form would add robustness to the findings.

### Editorial Excerpt



The article has 3% of plagiarism which is the accepted percentage as per the norms and standards of the journal for publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on a timely basis to the authors (Himani and Subodh), and accordingly, all the corrections had been incorporated as and when directed and required to do so. The comments related to this manuscript are noticeably related to the theme "Unified Payments Interface (UPI) in India: A Review of Adoption, Impact, and Challenges" both subject-wise and research-wise. This paper offers a timely review of the Unified Payments Interface (UPI) in India, focussing on its adoption, impact, and challenges. Its strengths have been that it brings together a lot of different types of literature, shows how UPI can help with financial inclusion and digital transformation, and gives useful information for ongoing policy and fintech debates in India. To further improve, the authors are encouraged to sharpen the methodology description, enhance analytical depth in the global horizon, and, where possible, support arguments with empirical evidence or tabular summaries. After comprehensive reviews and the editorial board's remarks, the manuscript has been categorized and decided to publish under the "Review of literature" category.

### Acknowledgement



The acknowledgment section is an essential part of all academic research papers. It provides appropriate recognition to all contributors for their hard work and effort taken while writing a paper. The data presented and analyzed in this paper by (Himani and Subodh) were collected first handily and wherever it has been taken the proper acknowledgment and endorsement depicts. The authors are highly indebted to others who facilitated accomplishing the research. Last but not least, endorse all reviewers and editors of GJEIS in publishing in the present issue.

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