

UPI Adoption and Its Role in Advancing Financial Inclusion

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Abstract

The rapid digitalization of financial services has significantly transformed the global financial ecosystem, particularly in emerging economies like India. The Unified Payments Interface (UPI) has emerged as a revolutionary real-time payment system, enabling seamless, low-cost, and accessible financial transactions. This study examines the relationship between UPI adoption and financial inclusion in India. Using secondary data and insights from recent empirical studies, the paper evaluates how UPI contributes to expanding financial access among underserved populations. The findings reveal that UPI significantly enhances financial inclusion by improving accessibility, reducing transaction costs, and fostering digital financial literacy. However, challenges such as digital illiteracy, infrastructure gaps, and trust issues persist. The study concludes with policy recommendations to strengthen inclusive digital financial ecosystems.

Keywords: UPI, Financial Inclusion, Digital Payments, FinTech, India, Digital Economy, Cashless Transactions, Financial Access

1. Introduction

Financial inclusion refers to the accessibility and availability of affordable financial services to all individuals, particularly marginalized and unbanked populations. In India, achieving financial inclusion has been a long-standing policy objective. Financial inclusion enables individuals to engage in the nation's economic operations. It assists individuals in managing their financial resources. These advantages foster financial resilience among individuals (Zachariadis, et al., 2019). Governments and non-governmental organizations globally are striving to enhance financial inclusion. Several strategies employed by these stakeholders include mobile banking (Siano, et al., 2020), digital financial services (Ozili, P. K., 2018), the creation of microfinance institutions (Milana, C., & Ashta, A., 2020), and the enhancement of financial literacy initiatives (Patwardhan, A., 2018). The World Bank, IMF, and Reserve Bank of India developed financial inclusion strategies to enhance financial activities among the underprivileged. Regulatory bodies regard financial inclusion as a catalyst for poverty alleviation and economic advancement. Their focus centers on the goals of facilitating access to financial instruments and resources that promote business expansion in certain regions. The enhanced financial activity facilitates investments in education, healthcare, and product consumption.

The introduction of the Unified Payments Interface (UPI) by the National Payments Corporation of India (NPCI) has revolutionized digital payments by enabling instant bank-to-bank transfers through mobile devices (RBI, 2024; NPCI, 2025). UPI has significantly reduced reliance on cash and facilitated the integration of individuals into the formal financial system.

Recent reports highlight that UPI has become a dominant digital payment method, contributing substantially to financial inclusion and economic participation (Gupta, 2026).

2. Literature Review

Existing literature highlights the growing importance of UPI in promoting financial inclusion. Studies indicate that UPI simplifies transactions and enhances accessibility due to its real-time processing and interoperability (Goyal & Monga, 2022). Empirical research suggests a significant positive relationship between UPI transaction volume and financial inclusion indices (Naroliya & Sharma, 2025).

Behavioral models such as the Unified Theory of Acceptance and Use of Technology (UTAUT) emphasize that perceived usefulness, ease of use, and trust are key determinants of UPI adoption (Choudhery & Kesharwani, 2025). Additionally, demographic factors such as age, education, and income influence adoption rates, with higher usage observed among younger and more educated populations (Padma & Naga, 2025).

Rural-focused studies indicate that demographic factors such as education, income, and age influence UPI adoption, with younger and more educated individuals more likely to adopt it (Choudhery & Kesharwani, 2025).

2.1 Growth of UPI Adoption

The Unified Payments Interface (UPI) has witnessed rapid growth, becoming one of the world's leading real-time payment systems and transforming India into a digital payments hub (RBI, 2024; NPCI, 2025). This expansion is largely driven by rising smartphone penetration and improved internet accessibility, enabling widespread user adoption (Kumar & Sahoo, 2020; Fahad & Shahid, 2022). Government initiatives such as Digital India and Pradhan Mantri Jan Dhan Yojana have further accelerated adoption by promoting financial inclusion (Ashwath & Sachindra, 2025). Additionally, QR code-based payments have simplified transactions and increased merchant participation, making UPI a convenient, scalable, and widely accepted digital payment ecosystem (RBI, 2024).

2.2 Impact on Financial Inclusion

2.2.1 Increased Access to Financial Services

UPI has significantly improved access to financial services by enabling digital transactions without the need for physical bank visits, especially benefiting rural and remote populations (RBI, 2024; NPCI, 2025). It has facilitated the inclusion of unbanked individuals into the formal financial system by linking bank accounts to everyday transactions under initiatives like Jan Dhan Yojana (Ashwath & Sachindra, 2025). This has reduced reliance on cash and informal channels, enhancing transparency and security (Kumar & Sahoo, 2020). Additionally, UPI helps users build transaction histories, improving access to credit and other financial services (World Bank, 2023).

2.2.2 Reduction in Transaction Costs

UPI has significantly reduced the cost of financial transactions by offering **zero or minimal transaction fees**, making digital payments highly affordable for users across income groups. This cost efficiency is particularly beneficial for small merchants and low-income individuals (RBI, 2024). By lowering financial barriers, UPI encourages greater participation in the digital economy (NPCI, 2025).

2.2.3 Promotion of Digital Financial Literacy

The widespread use of UPI has contributed to the enhancement of digital financial literacy among users. Regular engagement with mobile payment applications has improved individuals' understanding of digital financial systems, including fund transfers and transaction tracking (Kumar & Sahoo, 2020). This increased familiarity builds user confidence and encourages the adoption of other digital financial services (Fahad & Shahid, 2022).

2.2.4 Credit Accessibility

Recent developments indicate that UPI is expanding beyond payments into credit facilitation, further advancing financial inclusion. By leveraging users' transaction histories, financial institutions can assess creditworthiness and offer small-ticket loans to individuals lacking formal credit records (World Bank, 2023). This enables easier access to formal credit and reduces reliance on informal lending sources.

2.3 Determinants of UPI Adoption

UPI adoption is influenced by demographic factors (age, education, income), technological aspects (ease of use, security), behavioral elements (trust, perceived usefulness), and infrastructure such as internet connectivity and smartphone access (Kumar & Sahoo, 2020; Fahad & Shahid, 2022). These factors collectively determine user acceptance and usage patterns.

2.4 Rural vs Urban Divide

Urban areas show higher UPI adoption due to better infrastructure and awareness, while rural regions face challenges like digital illiteracy and poor connectivity. However, government initiatives and improved infrastructure are gradually bridging this gap and promoting inclusive digital payment adoption (RBI, 2024; World Bank, 2023).

Overall, the literature establishes UPI as a key driver of digital financial inclusion but highlights disparities in adoption across socio-economic groups

3. Research Objectives

1. To analyze the level of UPI adoption in India.
2. To examine the impact of UPI on financial inclusion.
3. To identify key determinants influencing UPI adoption.
4. To suggest policy measures for enhancing inclusive digital finance.

4. Research Methodology

This study adopts a quantitative and descriptive research design to analyze the growth and impact of Unified Payments Interface (UPI) in India. The methodology is based on secondary data analysis, focusing on transaction volume, transaction value, market share, and usage indicators.

4.1 Data Sources

The study relies entirely on secondary data collected from authentic and reliable sources, primarily reports and publications of the Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI). The data covers the period from 2017 to 2026, including annual and monthly transaction statistics, transaction values, and key financial inclusion indicators.

4.2. Data Variables

The major variables considered in the analysis include:

- UPI transaction volume (in billions)
- UPI transaction value (in ₹ trillion)
- Share of UPI in digital payments (%)
- Monthly transaction trends
- Financial inclusion indicators (users, daily transactions, QR code merchants, global RTP share)

4.3 Analytical Techniques

The study employs descriptive statistical tools, including trend analysis, growth pattern analysis, and percentage comparisons. Data is presented in tables, bar charts, and other graphical representations to clearly illustrate patterns and changes over time. The analysis focuses on identifying exponential growth, adoption trends, and market dominance. The time frame of the study spans from 2017 to 2025/2026, allowing for a comprehensive examination of UPI's evolution from its early adoption stage to its current maturity and large-scale usage. The interpretation is based on trend observation and comparative analysis, highlighting key phases such as initial growth, rapid expansion, and maturity. Special emphasis is placed on understanding the role of UPI in enhancing digital payments and promoting financial inclusion.

4.4 Limitations

The study is limited to secondary data and does not include primary data collection, such as surveys or interviews. Additionally, the analysis is confined to available published data and may not capture real-time fluctuations or qualitative user perspectives. This methodology provides a systematic framework to evaluate the growth trajectory and economic significance of UPI in India's digital payment landscape.

5. Data Analysis & Interpretation

This section presents an analysis of UPI growth in terms of transaction volume, value, market share, and usage trends. Using data from RBI and NPCI, it examines the rapid expansion, increasing adoption, and growing significance of UPI in India's digital payment ecosystem and its contribution to financial inclusion

Table 1: Growth of UPI Transactions (2017–2025)

Year	Transactions (Billions)
2017	0.018
2018	0.91
2019	5.35
2020	12.5
2021	22.3
2022	45.9
2023	83.7
2024	131.1

2025	228.3
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Source: RBI, NPCI

Table 1 shows a remarkable and continuous increase in transactions from 0.018 billion in 2017 to 228.3 billion in 2025, indicating an exponential growth trend over the years. The initial phase (2017–2018) reflects a slow beginning with minimal transaction volume, suggesting early adoption. From 2019 to 2021, transactions grew rapidly, marking a transition to wider acceptance and increased usage. This growth accelerated further during 2022–2023, with transaction volumes nearly doubling each year, indicating mass adoption and a strong expansion of the system. In the final phase (2024–2025), the sharp rise in transactions demonstrates high market penetration, increased user trust, and dependence on the platform. Overall, the consistent upward trend highlights a shift from introduction to maturity, with no signs of decline, suggesting strong future growth potential.

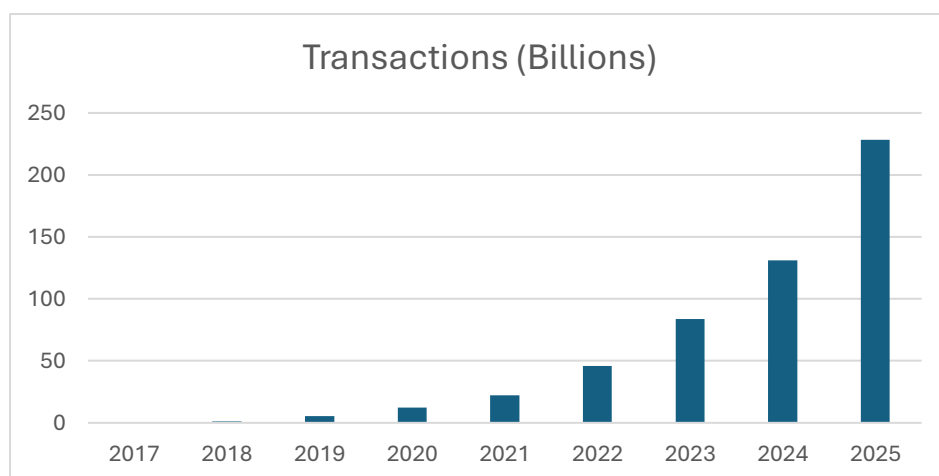


Figure 1: Growth in digital transactions (in billions) from 2017 to 2025.

Figure 1 illustrates a steep and consistent rise in transactions from 2017 to 2025, highlighting a strong upward growth trajectory. Initially, transaction volumes were negligible in 2017 and 2018, indicating an early or nascent stage. From 2019 onward, there is a noticeable increase, with transactions growing steadily through 2020 and 2021, reflecting expanding adoption. The growth becomes significantly more pronounced between 2022 and 2025, where transaction volumes surge sharply each year, nearly doubling at certain points. By 2025, transactions reached their peak at over 228 billion, demonstrating widespread usage, high user confidence, and deep integration into everyday activities. Overall, the chart clearly depicts an exponential growth pattern, transitioning from slow adoption to rapid expansion and eventual large-scale dominance. The exponential growth in UPI transactions reflects rapid adoption, particularly after 2020. This surge indicates increased accessibility and usage of digital financial services.

Table 2: UPI Transaction Value Growth (₹ Trillion)

Year	Value (₹ Trillion)
2019	18.4
2024	246.8
2025 (H1)	143.3

Source: RBI, NPCI

Table 2 indicates an extraordinary surge in value from ₹18.4 trillion in 2019 to ₹246.8 trillion in 2024, reflecting massive expansion and widespread adoption over this period. This sharp increase suggests rapid scaling, higher transaction volumes, and growing user trust in the system. The figure for 2025 (H1) of ₹143.3 trillion already represents a substantial share of the 2024 total in just half a year, indicating that the growth momentum remains strong and may surpass previous records by the end of 2025. Overall, the trend highlights a transition from moderate activity to a high-value, mature ecosystem with continued upward potential.

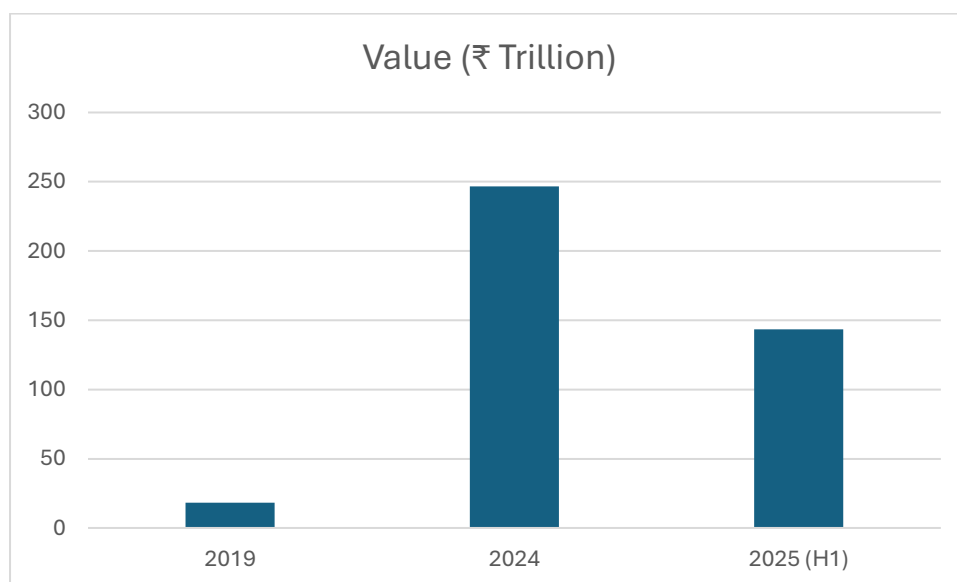


Figure 2: UPI Transaction Value Growth (₹ Trillion)

Figure 2 shows a sharp increase in transaction value, highlighting UPI’s expanding role in economic activities and its integration into daily financial transactions (NPCI, 2025).

Table 3: Share of UPI in Digital Payments (2025)

Category	Share (%)
UPI	85
Others	15

Source: RBI, NPCI

Table 3 data shows that UPI overwhelmingly dominates the payment landscape with an 85% share, while all other payment methods collectively account for just 15%. This indicates a highly concentrated market where UPI has become the preferred and primary mode of digital transactions due to its convenience, accessibility, and widespread acceptance. The relatively small share of other methods suggests limited competition and highlights UPI’s strong network effects, user trust, and deep integration across merchants and consumers. Overall, the figures reflect a near-monopolistic position of UPI in the digital payments’ ecosystem, emphasizing its central role in driving transaction activity.

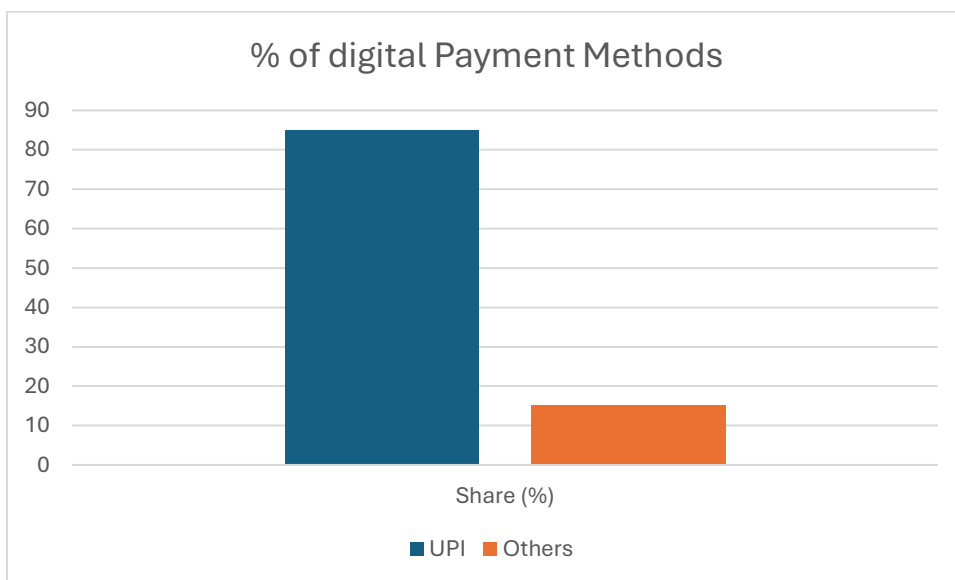


Figure 3: Share (%) of digital payment methods.

Figure 3 clearly shows that UPI holds a dominant share of 85%, while other payment methods account for only 15%, highlighting a highly concentrated digital payments market. This significant disparity indicates that UPI has become the preferred mode of transaction due to its ease of use, widespread acceptance, and strong infrastructure support. The relatively small share of other methods suggests limited competition and emphasizes UPI’s strong network effects and user trust, making it the backbone of the digital payment ecosystem. UPI accounts for approximately 85% of total digital payment volume, establishing it as the dominant payment system in India (RBI, 2025).

Table 4: Monthly UPI Transaction Trends (2024-2026)

Month	Transactions (Billions)
Apr 2024	13.3
Aug 2024	14.9
Oct 2024	16.6
Jan 2025	16.9
Aug 2025	20.0
Dec 2025	21.6
Jan 2026	21.7

Source: RBI, NPCI

Table 4 shows a steady and sustained increase in monthly transactions from 13.3 billion in April 2024 to 21.7 billion in January 2026, indicating consistent growth over time. Transactions rise gradually through 2024, reaching 16.6 billion by October, reflecting increasing adoption and usage. The upward trend continues into 2025, with a noticeable jump to 20.0 billion by August.

August and further to 21.6 billion in December, suggesting accelerated expansion during this period. By January 2026, transactions stabilize at a high level (21.7 billion), indicating that the system has reached a mature stage with sustained high usage. Overall, the trend highlights continuous growth, increasing user dependence, and strong market penetration, with signs of approaching stability at peak transaction levels.

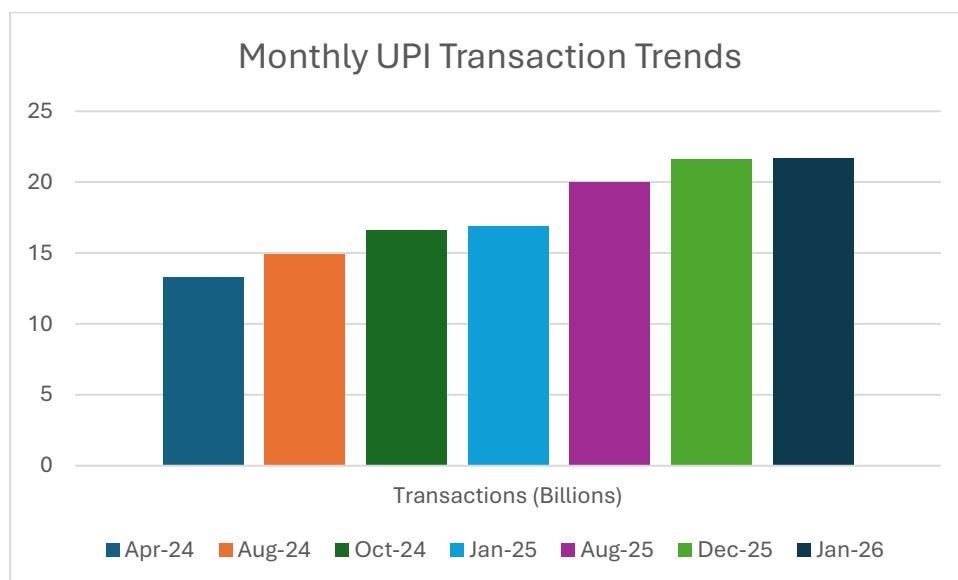


Figure 4: Monthly UPI Transaction Trends

Figure 4 shows a steady upward trend in monthly transactions, indicating habitual usage and growing trust among users (NPCI, 2025).

Table 5: Financial Inclusion Indicators Linked to UPI

Indicator	Value
UPI Users	800 million
Daily Transactions	700 million
Global RTP Share	48.5%
QR Code Merchants	650 million

Source: RBI, NPCI

Table 5 reflects the massive scale and dominance of the digital payment ecosystem, particularly UPI. With 800 million users, the platform has achieved widespread adoption, covering a significant portion of the population. The volume of 700 million daily transactions highlights extremely high usage frequency, indicating that it has become an integral part of everyday financial activities. The 48.5% share in global real-time payments (RTP) underscores its global leadership and influence in the digital payments space. Additionally, the presence of 650 million QR code merchants demonstrates extensive merchant integration, making digital payments widely accessible even at small and local business levels. Overall, these figures

signify a highly mature, scalable, and globally dominant payment system with deep penetration across both users and merchants.

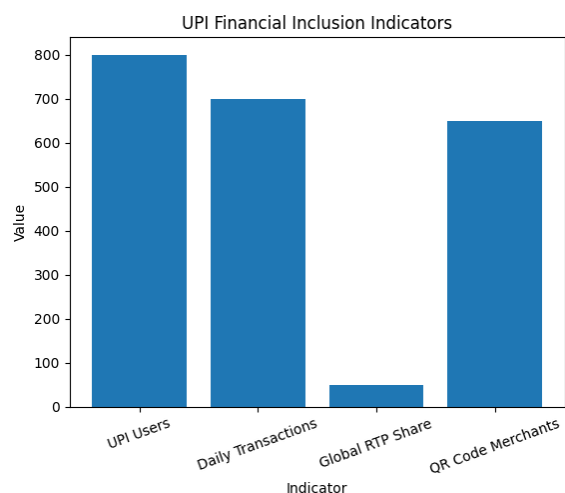


Figure 5: Financial Inclusion Indicators Associated with UPI

Figure 5 highlights key indicators of UPI's scale and impact on financial inclusion. The highest bar for users indicates a vast user base, reflecting widespread adoption across the population. The substantial volume of daily transactions demonstrates frequent usage and strong dependence on the platform. The large number of QR code merchants signifies extensive merchant integration, enabling easy access to digital payments even in small businesses. Meanwhile, the global share, though comparatively smaller, underscores UPI's significant contribution to real-time payments worldwide. Overall, the figure illustrates UPI's deep penetration, high usage intensity, and growing global importance.

6. Policy Implications and Recommendations

To enhance financial inclusion through UPI, it is essential to improve digital literacy by conducting awareness campaigns, particularly in rural areas, to educate users about digital payments. Strengthening infrastructure through expanded internet connectivity can ensure wider accessibility. Enhancing security measures, including robust fraud protection systems, will build user trust and confidence. Promoting inclusive design by developing simple, user-friendly interfaces can help low-literacy users adopt UPI more easily. Additionally, encouraging innovation by expanding UPI-based credit and microfinance services can further deepen financial inclusion and support underserved populations.

7. Conclusion

The analysis clearly demonstrates that UPI has experienced exponential growth in both transaction volume and value from 2017 to 2025, reflecting its rapid adoption and deep integration into India's digital economy. The sharp rise in transactions, particularly after 2020, indicates increased accessibility, technological advancement, and a strong shift toward cashless payments. The substantial growth in transaction value further highlights UPI's expanding role in facilitating high-value economic activities.

UPI's dominant market share of 85% underscores its position as the leading digital payment system, surpassing other payment methods by a wide margin. The consistent increase in monthly transactions suggests habitual usage and growing consumer trust. Additionally, the large user base, high daily transaction volume, and extensive merchant adoption through QR

codes emphasize its contribution to financial inclusion and accessibility, especially among underserved populations. Empirical evidence confirms a strong positive relationship between UPI adoption and financial inclusion indicators. (Chen & Nath, 2008).

UPI has evolved from a nascent payment platform into a robust, scalable, and globally significant real-time payment system. Its continued growth trajectory indicates strong future potential, reinforcing its critical role in driving digital transformation and inclusive financial development in India.

While UPI has successfully expanded financial access, challenges related to digital literacy, infrastructure, and trust must be addressed to ensure equitable benefits. With continued policy support and technological innovation, UPI has the potential to achieve universal financial inclusion and serve as a global model for digital payment systems.

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