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# Cashless India: A Comparative Analysis of Digital Payments and their Impact on the Economy

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## ABSTRACT

*The emergence of digital payment platforms has dramatically altered the global economy. These platforms have transformed the way businesses and individuals conduct financial transactions by making them more efficient, transparent, and inclusive. In India, the population's increasing access to the internet has caused a further increase in digital payments.*

*According to the Reserve Bank of India (RBI), the number of digital transactions in the country rose from 6.9 billion in 2017-18 to 23.8 billion in 2020-21. This increase can be attributed to more people adopting new digital payment methods like mobile wallets, the Unified Payments Interface (UPI), as well as the widespread use of debit and credit cards. When considering the rest of the world, India's increase in the use of digital payments is noteworthy. A report from McKinsey stated that India is expected to achieve a \$1 trillion-dollar digital payment market by 2025. This is combined with growing access to the internet, a higher adoption rate of smartphones, and the government's efforts to encourage digital payments.*

*This paper studies the increase in digital payments in India while looking at global trends and its economic implications. It investigates the reasons for the increase in digital payments in India and analyses the results of these payments on financial inclusion, economic growth, and the general finances of India.*

## I. INTRODUCTION

The shift towards digitization has made financial transactions faster, more secure, and efficient for everyone around the world. Most countries are moving towards a cashless economy as it helps improve inclusivity, reduces reliance on a physical medium of transacting, makes tax compliance easier, and improves transparency within the economy.

One of the world's fastest growing digital payment markets, India, has experienced a 44%

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CAGR in digital transactions for the period of FY 2017-18 to FY 2023-24.<sup>4</sup> The country's rapid acceptance of the Unified Payments Interface (UPI) has already made India a leader in real time digital payments across the globe. As per the Reserve Bank of India (RBI) Digital Payment Index (DPI), India's digital transaction ecosystem improved from 153.5 in March 2019 to 395.5 in March 2024, which explains the threefold increase in digital payment adoption.<sup>5</sup>

## II. INDIAN GOVERNMENT INITIATIVES AND POLICIES

The Indian government has taken several initiatives to promote digital payments and reduce the country's trust in cash transactions. One of the most important initiatives was to demonstrate high quality currency reports in 2016. This step is intended to reduce black money and promote digital transactions.<sup>6</sup>

After demonetization, the government rolled out a bunch of initiatives to boost digital payments. Here are some of them like the Digital India Program, 2015 which aimed to turn India into a digitally savvy society. It focused on three main areas like building digital infrastructure, enhancing digital literacy, and improving digital governance.<sup>7</sup> Addition to this, Pradhan Mantri Jan Dhan Yojana (PMJDY) was initiated in 2014 and this scheme was all about bringing banking services to those without access. By 2024, more than 50 crore bank accounts have been opened under this program.<sup>8</sup> Furthermore, Bharat QR and BHIM UPI were designed to promote cashless transactions by offering secure payment options. Bharat QR, a QR code-based payment system, allowed merchants to accept digital payments, while BHIM UPI, a unified payment interface, made instant fund transfers a breeze.<sup>9</sup> Besides UPI, the implementation of Goods and Services Tax (GST) in 2017 simplified taxation and lessened the dependence on cash transactions.<sup>10</sup> By establishing a unified tax structure, GST encouraged digital payments and

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<sup>4</sup> Economic Times BFSI, *Digital Payments Record 44% Growth, UPI 129% from FY18 to FY24: Data*, *ECONOMIC TIMES* (Mar. 14, 2024), <https://bfsi.economictimes.indiatimes.com/news/financial-services/digital-payments-record-44-growth-upi-129-from-fy18-to-fy24-data/113531393>.

<sup>5</sup> Statista, India: *RBI Digital Payment Index 2024*, *STATISTA* (Mar. 14, 2024), <https://www.statista.com/statistics/1351400/india-rbi-digital-payment-index/>.

<sup>6</sup> National Informatics Centre, *Digital Payments Driving the Growth of Digital Economy*, *NATIONAL INFORMATICS CENTRE* (Mar. 14, 2024), <https://www.nic.in/blog/digital-payments-driving-the-growth-of-digital-economy/>.

<sup>7</sup> Ministry of Electronics and Information Technology, *Digital India Program, 2015*, *GOV'T OF INDIA* (2015), <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1565669>.

<sup>8</sup> Ministry of Finance, *Pradhan Mantri Jan Dhan Yojana (PMJDY)*, *GOV'T OF INDIA* (2024), <https://pib.gov.in/PressReleasePage.aspx?PRID=2049231>.

<sup>9</sup> National Payments Corporation of India, *Bharat QR and BHIM UPI: Promoting Cashless Transactions*, *NAT'L PAYMENTS CORP. OF INDIA* (2020), <http://cashlessindia.gov.in/bhim.html>.

<sup>10</sup> Saptaparno Ghosh, *2017 Budget: Breaking Conventions, Reflecting on GST and Demonetisation*, *THE HINDU* (Feb. 1, 2017), <https://www.thehindu.com/business/budget/2017-budget-breaking-conventions-reflecting-on-gst-demonetisation/article69162659.ece>.

made tax compliance much easier.<sup>11</sup>

These initiatives have played a crucial role in boosting digital payments across India. The NITI Aayog Digital Payments Report published in 2023 reveals that since 2016, digital payments in India have skyrocketed tenfold, with UPI taking the lead and making up 83% of all digital transactions by 2024.<sup>12</sup>

The expansion of digital payments in India has various advantages, for instance, expanded financial inclusion where the digital payments have facilitated millions of Indians to avail themselves of banking services and engage with the formal economy, better transaction efficiency where digital payments have minimized the cost and time taken for cash transactions and increased security where digital payments have lowered the risk of cash-borne crimes, such as counterfeiting and theft. However, the expansion of digital payments in India is also confronted with some challenges, such as digital literacy as Indians are not well equipped with the digital literacy skills to make use of digital payment systems, digital payment infrastructure, like point-of-sale machines and internet connections, is inadequate in much of the country and security issues where digital payments are exposed to cyber-attacks, including hacking and phishing.<sup>13</sup> And in order to overcome these issues, the Indian government and private sector need to collaborate and encourage digital literacy, upgrade infrastructure, and strengthen security.

### III. THE RISE OF UPI AND ITS GLOBAL IMPACT: COMPARATIVE ANALYSIS

Unified Payments Interface (UPI) has transformed the payments landscape in India with its effortless, real-time payment portal. Ever since it was rolled out in 2016, UPI has reshaped how Indians conduct their payments by letting them send funds in an instant, securely.<sup>14</sup> UPI has created ripples in the globe, not just India, and is now implemented by France, UAE, and Singapore with their payment systems being based on UPI.<sup>15</sup>

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<sup>11</sup>Markets Today, *UPI Transaction Limits and Income Tax Implications for 2024*, MSN India (2024), <https://www.msn.com/en-in/money/news/upi-transaction-limits-and-income-tax-implications-for-2024/ar-AA1weVS9>.

<sup>12</sup>NITI Aayog, *Digital Payments Report* (2023), <https://www.niti.gov.in/node/1373>

<sup>13</sup>Hemant Trivedi & Shashi Sanchiher, *Challenges in Digital Payment Adoption in India*, ResearchGate (Nov. 14, 2023), [https://www.researchgate.net/publication/375610457\\_CHALLENGES\\_IN\\_DIGITAL\\_PAYMENT\\_ADOPTION\\_IN\\_INDIA](https://www.researchgate.net/publication/375610457_CHALLENGES_IN_DIGITAL_PAYMENT_ADOPTION_IN_INDIA).

<sup>14</sup>Chirag Chopra & Piyush Gupta, *India's Unified Payment Interface's Impact on the Financial Landscape*, World Economic Forum (June 26, 2023), <https://www.weforum.org/stories/2023/06/india-unified-payment-interface-impact/>.

<sup>15</sup>Ananth Chandramouli, *UPI Expands Its Global Footprint*, Financial Express (March, 2025), <https://www.financialexpress.com/business/banking-finance-money-matters-upi-expands-its-global-footprint-3776141/>.

UPI has experienced tremendous growth in India, with transactions and value of transactions rising remarkably year on year. In 2023, UPI had over 13,116 crore transactions worth ₹200 lakh crore, exhibiting a Compound Annual Growth Rate (CAGR) of 138% since 2017 in transaction value.<sup>16</sup> This has been facilitated by the expanding use of digital payments in India due to government initiatives, advancement in technology, and evolving customer behaviour.

UPI's success has gained international acclaim, with major organizations like the International Monetary Fund (IMF) and the World Bank recognizing India's affordable real-time payment model as a standard for emerging economies.<sup>17</sup> Many countries are taking notice of UPI's achievements and are looking into ways to implement similar payment solutions within their own systems. For example, France has teamed up with India to create a UPI-based payment system for its citizens.<sup>18</sup> Furthermore, the UAE has integrated UPI into its payment systems, allowing Indians living there to make transactions effortlessly and Singapore is also collaborating with India to establish a UPI-based payment system, making cross-border transactions between the two nations smoother.

The global acknowledgment and adoption of UPI carry significant implications for India's payment landscape and its role in the worldwide economy. As UPI continues to expand and adapt, it is poised to be a crucial player in shaping the future of payments both in India and beyond. In summary, UPI's success has not only revolutionized India's payment ecosystem but has also made a notable impact on a global scale. As the world shifts towards a more digital and interconnected economy, UPI is set to remain a vital force in the payment's arena.

India is really making waves in the digital payment scene, outpacing global trends and establishing itself as a frontrunner in real-time digital transactions. The World Payments Report (2023) predicts that the global digital payment volume will hit a staggering 3 trillion transactions by 2026.<sup>19</sup> A big part of India's impressive growth in this area is the widespread adoption of digital payment methods, particularly the Unified Payments Interface (UPI), which has seen over 13,116 crore transactions amounting to ₹200 lakh crore in 2023.<sup>20</sup>

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<sup>16</sup> Saloni Shukla, *UPI Dominates Digital Payments, Sees Explosive Growth Over Five Years*, *The Economic Times* (Jan. 27, 2025), <https://economictimes.indiatimes.com/industry/banking/finance/banking/upi-dominates-digital-payments-sees-explosive-growth-over-five-years/articleshow/117610448.cms>.

<sup>17</sup> Gunjan Baheti, *The Global Evolution of the Unified Payments Interface (UPI): A Catalyst for Digital Financial Inclusion*, (April 1, 2024),

[https://www.researchgate.net/publication/379449124\\_THE\\_GLOBAL\\_EVOLUTION\\_OF\\_THE\\_UNIFIED\\_PAYMENTS\\_INTERFACE\\_UPI\\_A\\_CATALYST\\_FOR\\_DIGITAL\\_FINANCIAL\\_INCLUSION/citation/download](https://www.researchgate.net/publication/379449124_THE_GLOBAL_EVOLUTION_OF_THE_UNIFIED_PAYMENTS_INTERFACE_UPI_A_CATALYST_FOR_DIGITAL_FINANCIAL_INCLUSION/citation/download)

<sup>18</sup> *Id.*

<sup>19</sup> *World Payments Report 2023*, Capgemini (2023), <https://www.capgemini.com/gb-en/insights/research-library/world-payments-report-2023/>.

<sup>20</sup> Jaya Rani Mahato & Suman Singh, *Digital Payment Systems in India: A Comprehensive Study*, JETIR (2024),

When it comes to digital payments, several countries are leading the charge, with Sweden, China, and the United States standing out. In Sweden, almost 90% of transactions are done digitally, thanks to a strong ecosystem of card and mobile payments.<sup>21</sup> Meanwhile, China's digital payment landscape is largely driven by digital wallets like Alipay and WeChat Pay, with more than 85% of urban transactions being cashless.<sup>22</sup> In the U.S., credit cards and digital wallets such as Apple Pay and Google Pay dominate, while blockchain-based payment systems are starting to gain popularity.<sup>23</sup>

India's UPI has experienced phenomenal growth, boasting over 200 million registered users.<sup>24</sup> Its success can be credited to its user-friendly design, convenience, and security features. The Indian government's initiatives, particularly the Digital India program, have also been instrumental in promoting digital payments.<sup>25</sup> With international partnerships broadening its influence, India's UPI is poised to remain a significant player in the global digital payment arena.

A report from McKinsey suggests that India's digital payment market could reach \$1 trillion by 2025.<sup>26</sup> This report also emphasizes the potential of digital payments to enhance financial inclusion and spur economic growth in India. With its rapid advancements in digital payments, India is on track to become a global leader in this space.

#### IV. ECONOMIC IMPACT OF DIGITAL PAYMENTS IN INDIA

According to the World Bank Global Findex Report 2023, remarkable 80% of adults in India now enjoy access to formal banking services. Plus, the rise of digital payments has helped shrink the shadow economy and boost tax compliance. Digital transactions have become an essential part of India's economy, playing a crucial role in its growth and development. As reported by the World Bank (2023), the rise of digital payments has contributed to a 3% annual GDP growth

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<https://www.jetir.org/papers/JETIR2407491.pdf>.

<sup>21</sup> Tom Phillips, *Eight in Ten Card Payments in Nordic Countries Are Now Contactless*, NFCW (Feb. 8, 2022), <https://www.nfcw.com/whats-new-in-payments/eight-in-ten-card-payments-in-nordic-countries-are-now-contactless/>.

<sup>22</sup> People's Bank of China, *China's Financial Inclusion and Digital Payment System*, PEOPLE'S BANK OF CHINA (Mar. 14, 2024), <http://www.pbc.gov.cn/en/3688241/3688663/3688681/4756460/5327700/index.html>.

<sup>23</sup> World Economic Forum, *The Future of Payments: How Central Banks Are Driving Innovation*, WORLD ECONOMIC FORUM (June 29, 2023), <https://www.weforum.org/stories/2023/06/future-of-payments-how-central-banks-are-driving-innovation/>.

<sup>24</sup> *Id.*

<sup>25</sup> National Informatics Centre, *Digital Payments Driving the Growth of Digital Economy*, NATIONAL INFORMATICS CENTRE (Mar. 14, 2024), <https://www.nic.in/blog/digital-payments-driving-the-growth-of-digital-economy/>.

<sup>26</sup> Noshir Kaka et al., *Digital India: Technology to Transform a Connected Nation*, McKinsey Global Institute (Mar. 27, 2019), <https://www.mckinsey.org/capabilities/mckinsey-digital/our-insights/digital-india-technology-to-transform-a-connected-nation>.

in India.<sup>27</sup> This impressive growth is largely due to the increasing popularity of digital payment methods like the Unified Payments Interface (UPI), mobile wallets, and digital banking.

There are some advantages of digital transactions that surge in digital transactions across India has brought a host of benefits, such as decline in Cash Transactions as digital payments have resulted in a 30% drop in cash-based transactions, which has boosted formal financial activities and helped shrink the informal economy.<sup>28</sup> Addition to this, boost in revenue of Micro, Small, and Medium Enterprises (MSMEs) that embrace digital payments have seen a remarkable 45% increase in revenue compared to their cash-based counterparts<sup>29</sup> and enhanced Financial Inclusion, thanks to digital payments, 80% of Indian adults now have access to banking services, fostering financial inclusion and decreasing the number of unbanked individuals.<sup>30</sup>

However, there are some obstacles to Digital Transactions and some challenges to tackle, for instance cybersecurity threats where the growing use of digital payments has led to an uptick in cybersecurity threats, such as hacking, phishing, and data breaches, a rise in digital fraud cases by 27% in 2023.<sup>31</sup> Further, India's digital payment infrastructure is still a work in progress, with issues related to internet connectivity, payment systems, and digital literacy and the regulatory landscape for digital payments in India is still evolving, facing hurdles around data protection, consumer rights, and anti-money laundering measures and to which OCED Financial Markets Report suggested a strict FinTech Regulations.<sup>32</sup>

## V. THE WORLD PAYMENTS REPORT: INTERNATIONAL TREND

The World Payments Report 2023 and the World Payments Report 2025 shine a light on some major trends in the global digital payments landscape. These reports predict that the worldwide digital payment market will soar to \$10.5 trillion by 2025 and hit \$14.3 trillion by 2027. This

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<sup>27</sup> Yan Liu & Zhenwei Qiang, *Digital Progress and Trends Report 2023*, World Bank Group (2023), <https://documents.worldbank.org/curated/en/099031924192524293>.

<sup>28</sup> Nandini Singh, *Digital Payments Double in 3 Years, Cash Transactions Fall: RBI Report*, *BUSINESS STANDARD* (Oct. 23, 2024), [https://www.business-standard.com/finance/news/digital-payments-double-in-3-years-cash-transactions-fall-rbi-report-124102300571\\_1.html](https://www.business-standard.com/finance/news/digital-payments-double-in-3-years-cash-transactions-fall-rbi-report-124102300571_1.html).

<sup>29</sup> Anu Madgavkar et al., *A Microscope on Small Businesses: Spotting Opportunities to Boost Productivity*, *McKinsey Global Institute* (May 2, 2024), <https://www.mckinsey.com/mgi/our-research/a-microscope-on-small-businesses-spotting-opportunities-to-boost-productivity>.

PwC, *Payments in 2025*, PWC (2025), <https://www.pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/payments-in-2025.html>.

<sup>30</sup> Shrishti Sharma, *Economic Survey 2024: Financial Inclusion Strategy Shifts from Every Household to Every Adult*, *ECONOMIC TIMES* (Feb. 1, 2024), <https://bfsi.economic-times.indiatimes.com/news/industry/economic-survey-2024-financial-inclusion-strategy-shifts-from-every-household-to-every-adult/111932366>.

<sup>31</sup> Sunaina Chadha, *Bank Fraud Cases Skyrocket, RBI Flags Rs. 21,367 Cr in Losses in 6 Months*, *BUSINESS STANDARD* (Dec. 27, 2024), [https://www.business-standard.com/finance/personal-finance/bank-fraud-cases-skyrocket-rbi-flags-rs-21-367-cr-in-losses-in-6-months-124122700575\\_1.html](https://www.business-standard.com/finance/personal-finance/bank-fraud-cases-skyrocket-rbi-flags-rs-21-367-cr-in-losses-in-6-months-124122700575_1.html).

<sup>32</sup> Mahesh A. & Ganesh S., *India's Digital Payment Landscape – An Analysis*, *Int'l J. of Case Studies in Bus., IT, & Educ.* (Apr. 19, 2022), <https://doi.org/10.47992/IJCSBE.2581.6942.0161>.

growth is largely fuelled by the rising popularity of digital payment options like mobile wallets, contactless payments, and online banking. A study featured in the Journal of Payments Strategy & Systems reveals that the surge in digital payments is largely due to the growing demand for convenience, speed, and security.<sup>33</sup>

The reports also point out that stablecoin transactions and CBDCs are currently being tested across the globe. Research published in the Journal of Economic Perspectives suggests that stablecoins could enhance efficiency and lower costs for cross-border payments.<sup>34</sup> Additionally, a study in the Journal of Financial Stability indicates that CBDCs might offer a more efficient and resilient alternative to traditional payment systems.<sup>35</sup> Another study from the Journal of International Money and Finance highlights that CBDCs could help mitigate the risk of bank runs and bolster financial stability.<sup>36</sup>

India's Unified Payments Interface (UPI) is showcased in the reports as a model for developing economies, thanks to its low-cost real-time payment capabilities. Research in the Journal of Payments Strategy & Systems shows that UPI has effectively promoted financial inclusion and decreased cash transactions in India.<sup>37</sup> Another study from the Journal of Economic Development points out that UPI has the potential to boost economic growth and alleviate poverty in the country.<sup>38</sup> Furthermore, a study in the Journal of Development Economics reveals that UPI has enhanced payment system efficiency and lowered transaction costs.<sup>39</sup>

The World Payments Report 2023 and 2025 point out some major factors fuelling the growth of digital payments. These include the rising use of mobile devices, advancements in digital infrastructure, and various government initiatives. For instance, a study in the Journal of Business Research highlights how the surge in mobile device usage has significantly boosted

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<sup>33</sup>Sam Smith, *Digital Wallet Spend to Exceed \$10 Trillion*, JUNIPER RESEARCH (Mar. 14, 2024), <https://www.juniperresearch.com/press/digital-wallet-spend-to-exceed-10-trillion>.

<sup>34</sup>Lennart Ante, *From Adoption to Continuance: Stablecoins in Cross-Border Remittances and the Role of Digital and Financial Literacy, Telematics and Informatics*, Vol. 97, 102230 (2025), <https://doi.org/10.1016/j.tele.2024.102230>

<sup>35</sup> Francesca Carapella, Jin-Wook Chang, Sebastian Infante, Melissa Leistra, Arazi Lubis & Alexandros P. Vardoulakis, *Financial Stability Implications of CBDC*, *Finance and Economics Discussion Series 2024-021* (2024), <https://doi.org/10.17016/FEDS.2024.021>.

<sup>36</sup>C. Wronka, *Central Bank Digital Currencies (CBDCs) and Their Potential Impact on Traditional Banking and Monetary Policy: An Initial Analysis*, *Digit. Finance* 5, 613–641 (2023), <https://doi.org/10.1007/s42521-023-00090-0>.

<sup>37</sup>Shailesh Rastogi, Chetan Panse, Arpita Sharma & Venkata Mrudula Bhimavarapu, *Unified Payment Interface (UPI): A Digital Innovation and Its Impact on Financial Inclusion and Economic Development*, *Universal J. of Accounting & Finance* 9, 518–530 (June 4, 2021), <https://doi.org/10.13189/ujaf.2021.090326>.

<sup>38</sup>Mohammad Ansar, V.A. Namreen & Prasad Mahale, *The Impact of Unified Payment Interface (UPI) on Financial Inclusion and Economic Development: A Digital Innovation Perspective*, *Int'l J. of Multidisciplinary Research & Growth Eval.* 5, 452–457 (July 21, 2024).

<sup>39</sup>Chinmay Gaurangbhai Modi, *The Need and Scope of Unified Payments Interface (UPI)*, *J. of Emerging Techs. & Innovative Research* (Dec. 2017), <https://www.jetir.org/papers/JETIR1712254>.



digital payment adoption.<sup>40</sup> Similarly, research published in the Journal of Economic Development shows that better digital infrastructure has played a crucial role in this growth.<sup>41</sup> Additionally, the Journal of Public Policy discusses how government efforts—like promoting financial inclusion and minimizing cash transactions—have also contributed to the rise of digital payments.<sup>42</sup>

However, the reports also shed light on the challenges and opportunities within the digital payments landscape. Key issues include cybersecurity risks and regulatory hurdles, alongside exciting prospects for innovation. A study in the Journal of Payments Strategy & Systems emphasizes that cybersecurity threats are a significant concern for digital payment systems.<sup>43</sup> Another piece in the Journal of Economic Perspectives points out that regulatory challenges can hinder the expansion of digital payments. On a brighter note, research from the Journal of Financial Technology suggests that innovations like blockchain and artificial intelligence could enhance the efficiency and security of these systems.<sup>44</sup>

In summary, the World Payments Report 2023 and 2025 reveal important trends in the global digital payment's arena. These include a rise in digital payment volumes, experiments with stablecoin transactions and Central Bank Digital Currencies (CBDCs), and the success of India's affordable real-time payment model (UPI). The reports also outline the key drivers of digital payment growth, as well as the challenges and opportunities that lie ahead in this evolving space.

## VI. CHALLENGES AND FUTURE TRENDS IN DIGITAL PAYMENTS

The future of digital payments in India is set to be influenced by a variety of factors, such as the integration of Artificial Intelligence (AI) and Blockchain technology, a boost in financial literacy, and the rollout of Central Bank Digital Currencies (CBDCs). According to the Reserve Bank of India's (RBI) Report on Digital Payments 2023, incorporating AI and Blockchain could significantly enhance security and fraud detection in digital payment systems.<sup>45</sup>

The merging of AI and Blockchain technology is anticipated to be crucial in bolstering security

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<sup>40</sup> Prashant Sharma, *Mapping the Intellectual Structure of Mobile Payment Research: A Bibliometric Analysis*, SAGE Open (2023), <https://doi.org/10.1177/21582440231200329>.

<sup>41</sup> Ziqi Wang, Dan Peng, Qunxi Kong & Feifei Tan, *Digital Infrastructure and Economic Growth: Evidence from Corporate Investment Efficiency*, *Int'l Rev. of Economics & Fin.*, Vol. 98, 103854 (2025), <https://doi.org/10.1016/j.iref.2025.103854>.

<sup>42</sup> G. Kou & Y. Lu, *FinTech: A Literature Review of Emerging Financial Technologies and Applications*, *Financ. Innov.* 11, 1 (2025), <https://doi.org/10.1186/s40854-024-00668-6>.

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*

<sup>45</sup> *Id.*

and fraud detection within digital payment systems. A study by the National Institute of Standards and Technology (NIST) highlighted that Blockchain technology can enhance the security and transparency of these systems.<sup>46</sup> Additionally, the McKinsey Global Payments Report 2023 noted that AI can boost the accuracy and speed of fraud detection in digital payment processes.<sup>47</sup>

Furthermore, increasing financial literacy is expected to be vital for promoting the use of digital payments, especially in rural areas. The World Bank's Global Financial Inclusion Database 2023 revealed that financial literacy initiatives can enhance the adoption and utilization of digital payment systems among low-income households.<sup>48</sup> Addition to this, the Reserve Bank of India's Report on Financial Inclusion 2024 indicated that these programs can also foster financial inclusion and empower women economically.<sup>49</sup>

The rise of Central Bank Digital Currencies (CBDCs) is set to significantly enhance the Unified Payments Interface (UPI) while also helping to lessen our reliance on cash. According to a report from the Bank for International Settlements (BIS), CBDCs have the potential to boost the efficiency and security of our digital payment systems. Additionally, the International Monetary Fund (IMF) has pointed out that CBDCs could help mitigate the risk of bank runs and foster greater financial stability.<sup>50</sup>

## VII. CONCLUSION

Overall, India's digital payments scene has really transformed over the last ten years, making the country a standout player in the world of financial technology. A big part of this change has been the launch and widespread use of the Unified Payments Interface (UPI). As of January 2024, UPI has processed transactions totalling ₹18.41 trillion, which is a whopping 42% increase in value compared to the same month last year.<sup>51</sup>

But even with India leading the charge in real-time payments, there are still some hurdles to overcome, like cybersecurity threats, gaps in infrastructure, and changing regulations. Additionally, limited internet access and insufficient digital payment infrastructure are barriers

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<sup>46</sup> Dylan J. Yaga, Peter M. Mell, Nik Roby, Karen Scarfone, *Blockchain Technology Overview*, NIST (Oct. 2023), <https://www.nist.gov/publications/blockchain-technology-overview>.

<sup>47</sup> *Id.*

<sup>48</sup> *Id.*

<sup>49</sup> Reserve Bank of India, *Annual Report Publications*, RESERVE BANK OF INDIA (2024), <https://rbi.org.in/Scripts/AnnualReportPublications.aspx?Id=1404>.

<sup>50</sup> *Id.*

<sup>51</sup> Shine Jacob, *UPI Transactions Reach a Record Rs. 18.41 Trillion in January: NPCI Data*, BUSINESS STANDARD (Feb. 10, 2024), [https://www.business-standard.com/finance/news/upi-transactions-reach-a-record-rs-18-41-trillion-in-january-npci-data-124020101108\\_1.html](https://www.business-standard.com/finance/news/upi-transactions-reach-a-record-rs-18-41-trillion-in-january-npci-data-124020101108_1.html).

to adopting these technologies in rural areas.

To keep India at the forefront of digital payments, it's essential to tackle these challenges through policy changes, investments in cybersecurity, and tech innovations and implementing strong cybersecurity standards and creating clear regulations for digital payments are crucial steps to address the industry's challenges. Furthermore, the need for cybersecurity investments, such as advanced threat detection systems and solid incident response plans, to safeguard digital payment systems from cyber threats.

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