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A Study of Digital Payment Landscape: Evidence from India

Ritesh Kumar Chaudhary
Ph.D Research Fellow, Deparment of Commerce, Shyama Prasad Mukherjee Government Degree College, University of Allahabad, UP, India
Email: spmgdc6264@gmail.com

Dr. Pragya Singh
Assistant Professor, Department of Commerce, Shyama Prasad Mukherjee Government Degree College, University of Allahabad, UP, India
Email: pragyasinghspm@gmail.com

Abstract
The shift from a cash-oriented system toward a cashless economy has significantly contributed to the rapid expansion of digital payment methods. Across the world, the use of physical currency in everyday transactions has declined, while card-based and electronic payment systems have gained prominence due to ongoing digital transformation. Digital payment modes are growing at a faster pace, and possessing a payment card has become increasingly common. With the widespread availability of goods and services online, internet users now rely more on electronic payment options. The growing demand for online services is closely linked to advancements in information technology and its application in marketing and commerce. Instead of withdrawing cash or standing in queues at banks, individuals now use mobile wallets and online banking platforms to transfer money and make payments. At retail counters as well, customers prefer swiping debit or credit cards or using digital apps rather than handling cash. These changes have been made possible through technological innovation and the effective adoption of digital systems by financial institutions. This research paper focuses on the role and importance of digital payment solutions in India and seeks to identify the purposes for which digital payments are used, along with the factors that motivate users to adopt these methods.
Keywords: Digital Payment, electronic payment, online services, Information Technology, E-wallets, etc.

Introduction:

In recent years, many countries around the world have taken steps to reduce their reliance on cash for transactions. An IMF working paper on the macroeconomics of “de-cashing” notes that both developed and developing economies have introduced measures aimed at limiting cash usage. These measures include withdrawing high-denomination currency notes, setting limits on cash transactions, requiring disclosure for large cash payments, regulating the movement of cash across borders, and, in some instances, imposing taxes on cash dealings. Such policies are not designed to eliminate money itself but rather to decrease the share of physical cash in circulation by promoting safer, more convenient, and transparent alternatives, such as card-based and digital payment systems. India is also progressing toward the establishment of a digital economy as part of its broader goal of creating a knowledge-driven society. Consistent efforts are being made to strengthen digital infrastructure to support electronic transactions and encourage a transition toward a less-cash economy. The adoption of digital payment technologies has expanded banking access and gradually transformed traditional banking practices in the country. If the full benefits of digitalization are realized, it

could significantly reshape India's socio-economic landscape, foster inclusive growth, and enhance economic opportunities for the general population.

RESEARCH OBJECTIVE:

1. To determine the factors influencing the growth in Digital Payment in India
2. To analyse the favorable and unfavourable factors affecting the performance of the digital payment industry in India.
3. To explore the emerging opportunities and key challenges impacting the future growth of digital payment systems in India.

METHODOLOGY

A qualitative analysis of secondary data was done to achieve research objectives. The data for this research paper has been collected using secondary data from different research papers, reports & government data have been studied and analysed in order to better understand the digital payment landscape system in India.

REVIEW OF LITERATURE

Mansi Shah (2024) "TO STUDY EFFECTIVENESS OF ONLINE PAYMENT MODES" Provides a comprehensive analysis of India's e-commerce ecosystem evolution, examining digital payment systems' role in facilitating transactions and their broader socio-economic implications.

Ajay Dutta (2023) "Digital Payment Trends, Issues and Opportunities in India" Reviews the Indian digital payment ecosystem, focusing on government initiatives for G2C, G2B, and G2G services, while examining cybercrime and digital literacy challenges.

Mamta Rani (2023) - "Digital Payment System Development in India" Reviews digital payment service development, analysing various payment modes, UPI network growth, and the impact of demonetization and COVID-19 on adoption

M. A., Ganesh Bhat S. (2022) employed a comprehensive PESTEL model to analyse India's digital payment landscape, examining political, economic, social, technological, environmental, and legal factors contributing to the transition from a cash-based to a digital economy.

Dr. Sangeeta Jerath (2022) conducted a systematic examination of digital payment growth using RBI Bulletin data, Annual Reports, and authentic websites. The study analysed payment infrastructure development, various payment modes, and the Reserve Bank of India's Digital Payment Index (DPI) with March 2018 as the base period

Shivathanu B. (2019). His research on the adoption of digital payment systems in the age of demonetization focused on how people used or accepted digital payment systems during this period of demonetization. It was based on a conceptual framework with a sample size of 766. The data analysis revealed that behavioural intentions and innovation resistance had an impact on the actual results usage on the actual results usage.

Baghla. A (2018). His research highlighted trends in the adoption of digital payment systems in India. The report also discusses how, after demonetization, people began to use digital platforms for transactions. The government's initiative to make our economy cashless and how consumers will adopt such a system are further examined. A structured questionnaire was utilised to collect data and determine the future of India's digital payment system.

Pandey and Rathore (2018) explored the impact of digital payment systems in their study. Because of industrialisation and globalisation, it was important for people to adopt current payment methods. The research is based on secondary data, including earlier works and government data, as well as secondary literature. All obtained data has been analysed and used to determine the impact and adoption of digital payments by the general public

Sanghita Roy, Dr. Indrajit Sinha (2014). They discussed in their paper how there has been a dramatic increase in the use of digitalised payment in India. However, paper currency is still used in over 90% of transactions. In this study, they used the TAM (Technology Acceptance Model) to identify the factors that are strengthening the e-payment system. These aspects include innovation, incentives, regulatory framework, and customer convenience.

DIGITAL PAYMENT Vs TRADITIONAL PAYMENT

E - payments	Traditional payments
Direct transactions through internet	Cannot transact without human intervention
Use technology for communication	Require humans to enable communication and processes
Have advanced security measures in place	Are risky to manage and prone to theft
Can be instantly withdrawn and deposited online	Can be instantly withdrawn and deposited online
Multiple options for payments	Limited payment options
Low operational costs	High operational costs
Easy to track transaction status	Less transparency on status and tracking
Automated payment reconciliation	Manual reconciliation with sizable documentation

Source-www.firstcardpayments.com

GROWTH OF DIGITAL PAYMENT IN INDIA

The **digital payment markets in India are expected to increase triple from the current three trillion dollars to ten trillion dollars in the coming four years, which is by 2026**. This was confirmed by the report issued by **PhonePe** after the collaboration with **Boston Consulting Group (BCG)**, the report was titled 'Digital Payments in India: A $10 trillion opportunity. The **report highlights the growth of India's digital payments in the last five years**. The growth in five years has resulted in aiming for digital payments to constituting two out of three payment transactions by 2026.

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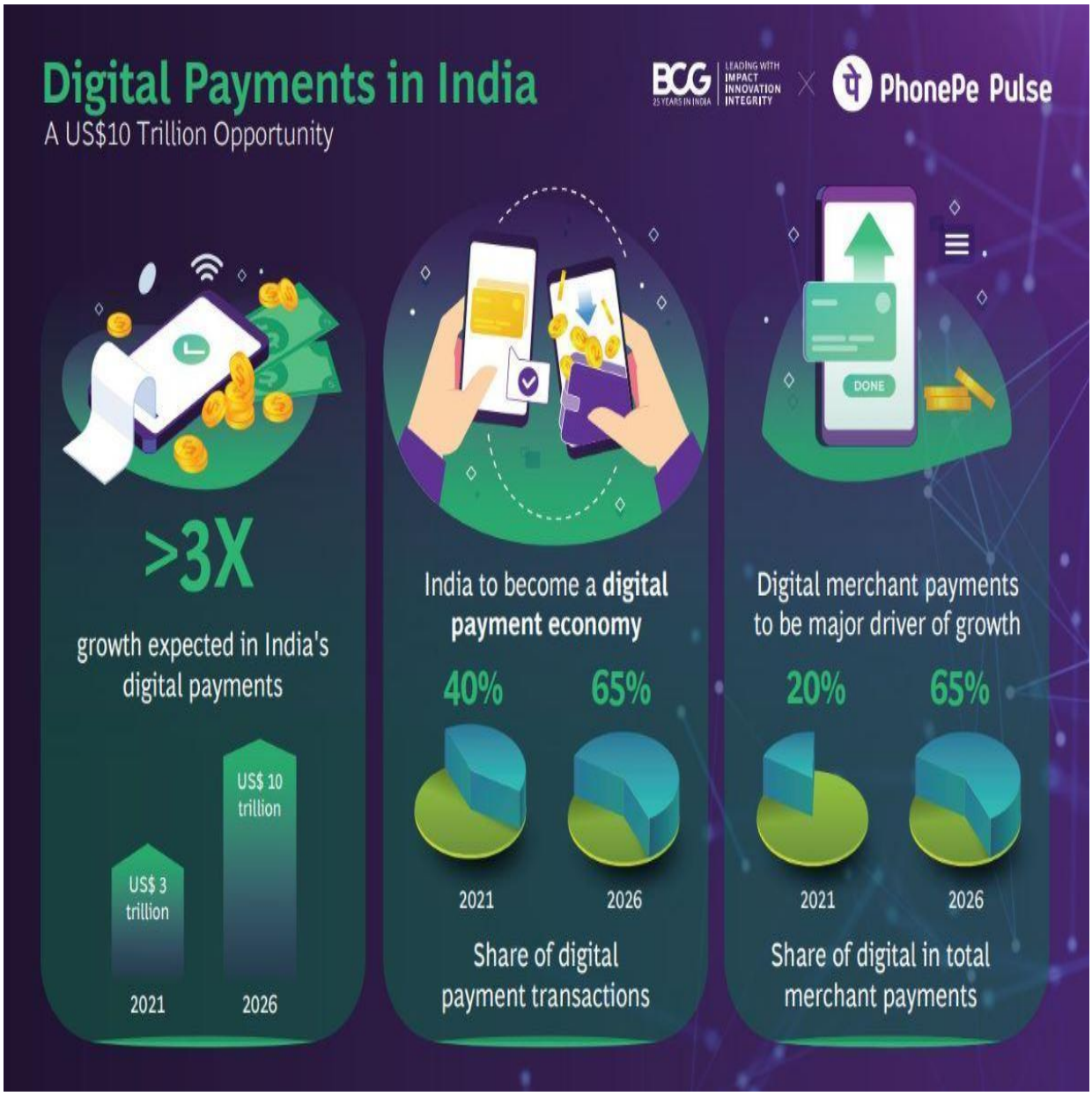
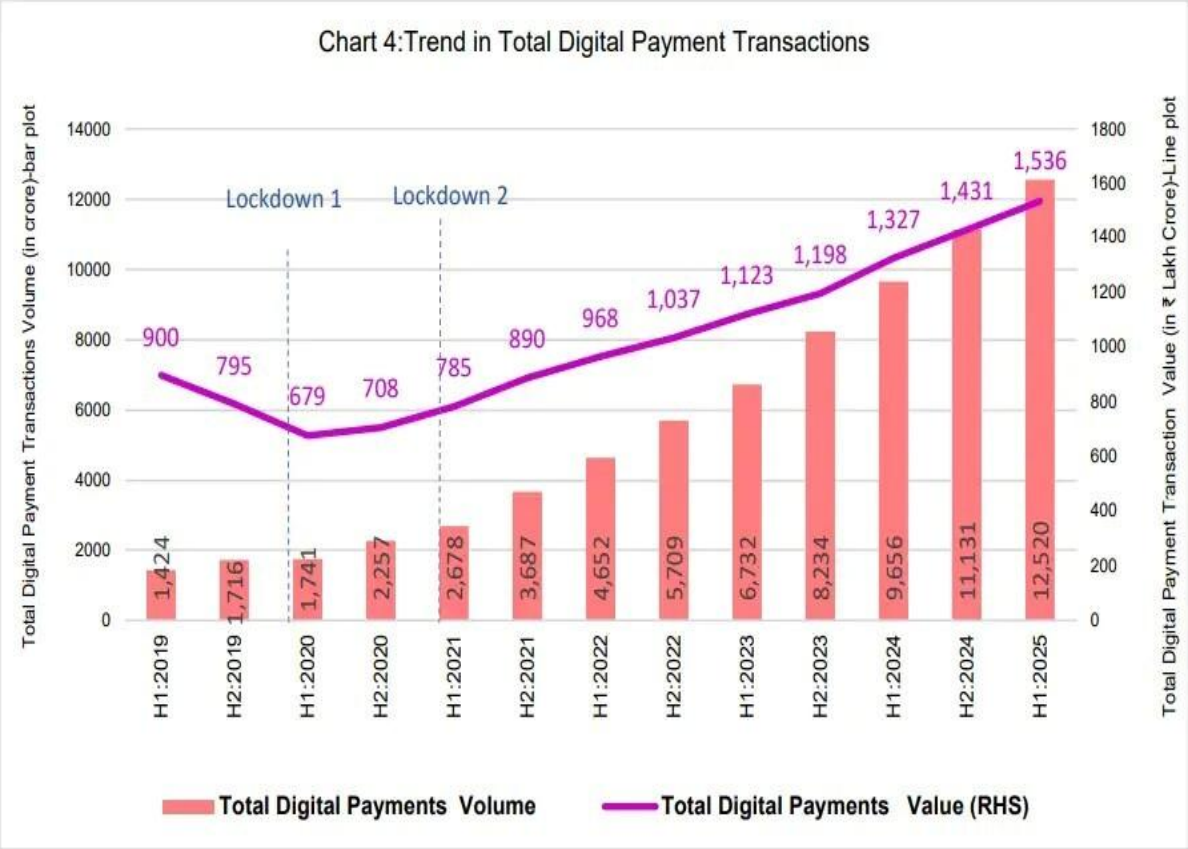


Overall Trends in Digital Payments

The payments ecosystem in India has experienced significant growth in recent years. As of the first six months of 2025, digital payments represent 99.8% of the total transaction volume and 97.7% of the total transaction value, according to data released by the Reserve Bank of India (RBI).The total payment transactions during the period amounted to Rs 1,572 lakh crore, out of which Rs 1,536 lakh crore was transferred as digital payments.



TYPES OF DIGITAL PAYMENT METHODS IN INDIA

1. Banking card: The banking industry offers a variety of cards to streamline transactions and reduce the time spent on banking activities. These cards provide consumers with enhanced security, convenience, and control compared to other payment methods. Among the different types of cards available are Rupay, MasterCard, and Visa, all of which offer increased security for users. Payment cards empower individuals to make purchases in physical stores, online, via mail-order catalogues, and over the phone. They save both customers and merchants time and money, facilitating smoother transactions.

2. USSD: USSD (Unstructured Supplementary Service Data): USSD is a widely used method for digital payments. It allows users to perform cashless transactions via mobile phones without needing to download any banking applications.

One advantage of USSD is that it operates without requiring mobile data. This digital payment service primarily aims to reach segments of the population that are not part of the mainstream financial system.

A notable feature of USSD is its availability in Hindi. USSD can be utilised for the following activities:

a. Starting the process of transferring funds

b. Checking account balances

c. Obtaining bank statement

3. Aadhar Enabled Payment system: AEPS is a bank-led model which allows online interoperable financial transactions at PoS (Point of Sale or Micro ATM) through the Business Correspondent or Bank Mitra of any bank using the Aadhar authentication.

4. UPI: UPI is a Unified Payments Interface system that allows multiple bank accounts into a single mobile application, merging several banking features. It is used to transfer money, receive money, make bill payments and others. Now it is getting popular among the Indian

people. It is interesting and easy to use and does not need to remember frequently use beneficiary's account number frequently. The customer can get the transaction history and quick payment.

5. Mobile Wallets: There are several mobile wallets available, and each bank have their own application. The customer can carry digital cash trough mobile wallet. By use of wallet customer can link a credit card or debit card to their mobile device to make transactions. An individual's account is required to be linked to the digital wallet to add money. The Paytm, Freecharge, Mobikwik, Airtel Money, Jio Money, SBI Buddy, itz Cash, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, Speed Pay, etc., are the mobile wallets used in India.

6. Point of sales: A point of sale (PoS) is where sales are made. It allows PoS holders to collect money from their customer by the way of swap, and no need to go bank for making transaction of purchase and sales. On a micro level, retailers consider a PoS to be the area where a customer completes a transaction, such as a checkout counter. But its require GPS, internet and a merchant's bank account.

7. Internet banking: Internet banking, also known as online banking, e-banking or virtual banking, is an electronic payment systems that allow customers of a bank to make transactions using the website of the bank using ID and password.

8. National Electronic Fund Transfer (NEFT): National Electronic Funds Transfer is a nationwide payment system that provides funds transfer from any bank, any branch to any bank. Using the system, individual firms and corporations can electronically transfer funds from any bank branch to any individual, firm or corporation having an account with any other bank branch in the country. Not only account holders but also people without an account can send money to others' accounts by depositing money from anywhere. However, such cash transactions have a limit of Rs. 50000/- using this service individual can deposit money on 50000/-, and this facility can use in working days.

9. Real Time Gross Settlement (RTGS): RTGS is the settlement of funds transfers individually on an order-by-order basis. 'Real Time' means the processing of instructions at the time they are received rather than at some later time. Considering that the funds settlement takes place in the books of the Reserve Bank of India, the payments are final and irrevocable. Transferring a large amount of RTGS is used. Customers can send a minimum of 2 lakhs, and the maximum has no limit. RTGS can use in banking hours.

10. Electronic Clearing System (ECS): ECS is an alternative method for payment transactions like utility-bill-payments, such as telephone bills, electricity bills, insurance premiums, card payments and loan repayments, etc.

11. Immediate Payment Service (IMPS): IMPS offers an instant, 24x7x365, interbank electronic fund transfer service through mobile phones. IMPS are a tool to transfer money instantly across India using mobile, internet and ATM it is safe and cost-effective.

12. Mobile banking: Mobile banking is a portable system provided by banks to customers on their mobile phones or smartphones with a special application using software. It is provided by the banks or financial institutions for this purpose. Each Bank provides its own mobile banking App for Android and Windows.

13. Micro ATM: Micro ATM is meant to be a device that is used by the million Business Correspondents to deliver basic banking services. The micro ATM enables Business Correspondents to make instant transactions. It helps with withdrawals and transfers transactions instantly.

Factors affecting Digital Payment in India

Political:

Digital Payment Initiative: The Digital Payment Initiative gained significant momentum when Prime Minister Narendra Modi's government demonetised high-value currency notes of Rs. 500 and Rs. 1,000. This move affected approximately 86% of the total cash in circulation, encouraging the adoption of digital payments and cashless transactions.

Multiple Digital Payment modes: There are various digital payment options available, including payment banks, e-wallets, UPI, FASTag, and Direct Benefit Transfer using AADHAAR. These initiatives aim to reduce black money and hawala transfers, which depend significantly on cash transactions. Additionally, these measures help prevent all forms of illicit activities.

Economic:

Future-Oriented Outlook: The RBI aims to provide all Indians with safe, secure, accessible, fast, and affordable e-payment solutions.

Increase in disposable income: Disposable personal income in India is projected to reach 317,426,514 million INR by the end of 2026, according to Trading Economics' global macro models and analysts' expectations. In the long term, total disposable personal income in India is anticipated to trend around 339,646,370 million INR in 2027 and 361,723,384 million INR in 2028, based on our econometric models.

Digital Economy Framework: Digital payments play a crucial role in today's economic changes, supported by global internet giants and relying on the tracking, creation, categorisation, and classification of digital data.

Technological:

Growth in Smartphone Adoption: Smartphone use in India has grown massively over the last decade, rising from about 34 million users to more than 800 million. Most people now rely on their phones for online shopping, and surveys show that a large share of consumers make purchases directly through their smartphones. Online shopping and smartphone usage go hand in hand, each supporting the growth of the other.

Reduced cost of internet: In India, the price for internet data has fallen dramatically. Back in 2015, 1GB of data cost around ₹300, but by 2025-2026, that same amount will likely be only about ₹10 to ₹14.

Rapid growth & adoption in e-commerce: Online marketplaces like Amazon, Flipkart, and Myntra have increased the use of digital payments. Shopping apps have changed consumer habits and encouraged people to pay online instead of using cash.

Real-time Payment Systems: Modern payment systems allow money to be transferred instantly. These technologies ensure quick settlement and make digital transactions smooth and reliable.

Social:

Media impact: Media, especially social media platforms, help spread awareness about digital payments. They influence how people think about and adopt new payment methods.

Move towards contactless payments: During the COVID-19 period, people preferred contactless payments to avoid physical contact. QR codes and NFC-based methods became popular, and businesses promoted digital payments to reduce health risks.

Growth of urban areas: Digital payment use is higher in cities due to better education, awareness, and familiarity with banking and technology.

Legal:

RBI's Vision: The Reserve Bank of India has outlined plans to promote electronic payments and gradually move toward a less-cash economy.

Legislation: The main laws governing the digital payment ecosystem are the Banking Regulation Act of 1949, the Payment and Settlement Systems Act of 2007, the Prepaid Payment Instruments Directions of 2009, and the Master Circular of 2014.

Role of NPCI in Promoting Digital Payments: The National Payments Corporation of India plays a key role in promoting retail digital payments and expanding their use across the country.

Customer Grievance Redressal for Digital Transactions: The RBI introduced a scheme to handle customer complaints related to digital transactions, aiming to reduce fraud and build trust in digital payment services.

Environmental:

Decline in Paper-Based Currency Usage: Digital payment tools like mobile apps, wallets, and cards have reduced dependence on physical cash and paper.

Emergence of Online and App-Based Banking

People no longer need to visit bank branches for many services. Online and mobile banking apps now handle most financial activities, reducing crowding at banks.

FAVOURABLE AND UNFAVOURABLE FACTORS FOR THE GROWTH OF THE DIGITAL PAYMENT INDUSTRY IN INDIA

In the past decade, India's digital payment ecosystem has transformed how financial transactions are conducted. The introduction of the Unified Payments Interface (UPI) by the National Payments Corporation of India (NPCI) has played a crucial role, providing a real-time, cost-effective platform that has significantly boosted the number and value of digital transactions. Research shows that digital payments have experienced remarkable growth, driven by increased acceptance and technological integration in both urban and rural areas.

Government initiatives like Digital India, along with supportive regulatory frameworks, have facilitated the shift from cash to electronic payment methods. This transition promotes financial inclusion and helps formalise the economy. Additionally, the increasing penetration of smartphones and the rise in internet accessibility have made digital payment tools available to a larger segment of the population.

The rapid expansion of digital services faces challenges such as low digital and financial literacy, inconsistent internet access, cybersecurity concerns, and a preference for cash. These barriers hinder adoption across various population segments and may threaten long-term sustainability if not addressed through targeted policies and education.

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Favourable and Unfavourable factors affecting Digital Payment growth in India

Factor Category	Specific Factor	Description
Favourable	Digital infrastructure (UPI, NPCI)	Instant, interoperable digital payment rails (UPI) that support large-scale transactions at low cost.
Favourable	Government policy support	Government policy support National policy, the Digital India mission, and regulatory incentives promoting digital payments
Favourable	Mobile & Internet penetration	Growth in smartphone ownership and affordable data connectivity is expanding the user base.
Favourable	E-commerce ecosystem expansion	The growth of online marketplaces is expanding the demand for digital payment options
Favourable	Financial inclusion enhancement	Digital payments facilitate access to formal financial services, especially in underserved segments
Favourable	Demographic adoption trends	Higher adoption among youth and the working population, and women's inclusion
Unfavourable	Cybersecurity threats & fraud risk	Increased instances of fraud, cyber attacks, phishing, and financial loss incidents
Unfavourable	Digital literacy gap	Low levels of awareness, confidence, and skills in using digital payment systems, especially in rural or older populations
Unfavourable	Connectivity and infrastructure gaps	Unreliable internet connectivity and intermittent power supply in many regions
Unfavourable	Cash preference & behavioural inertia	Heavy reliance on cash transactions among certain population segments.
Unfavourable	Regulatory & economic challenges	Data-privacy concerns, service costs, and evolving regulations create uncertainty

BARRIERS TO USE DIGITAL PAYMENT:

1. Digital Literacy and Online Security: A significant portion of the population, particularly in rural and semi-urban areas, lacks the digital and financial literacy needed to use digital payment platforms safely and confidently. This vulnerability is a major concern, as it makes users more susceptible to phishing scams, cyber fraud, and other forms of security breaches. Ensuring strong customer protection and building user trust remains a critical challenge.

2. Infrastructure Gaps: Reliable and high-speed internet connectivity is essential for the digital payments ecosystem. However, in remote areas and Tier-3 cities, slow or unreliable internet can result in transaction failures. This undermines user confidence and restricts the expansion of digital platforms.

3. Ongoing Preference for Cash: Despite the rapid increase in digital transactions, cash continues to be a primary payment method for many people. This preference is influenced by established habits, a desire for privacy, and a lack of trust in digital systems, particularly for larger transactions.

4. Regulatory Complexity: As the fintech sector continues to grow, there is an ongoing need for a balanced regulatory framework that encourages innovation while also ensuring customer safety and system stability. Challenges such as data privacy, cross-border payment regulations,

and the evolving business models of fintech companies persist and require careful consideration.

Future Prospects and Opportunities

India's digital payment sector is anticipated to grow rapidly, with transaction values projected to reach around $10 trillion in the coming years. A large share of total payments in the country is likely to be carried out through digital modes. This transformation reflects a shift from basic payment processing toward a more advanced system characterised by intelligent financial services and global connectivity**.**

1. **UPI as an Emerging Global Payment Model**

India is strategically working to extend the reach of its successful UPI framework beyond its borders. Collaborative agreements with countries like France, Singapore, and the United Arab Emirates are allowing Indian travellers and non-resident Indians to access UPI-based payment services internationally. This expansion is anticipated to enhance India's position as a key player in the global digital payments landscape.

2. **Introduction and Growth of the Digital Rupee**

The Digital Rupee represents India's move toward a central bank-issued digital form of currency. Planned developments aim to enhance usability, including offline payment features through technologies like NFC, which will help users in areas with limited internet connectivity.

3. **The Growth of Embedded Financial Services**

More and more, payment options are being added to apps that aren't just about banking or finance. For example, ride-hailing apps, food delivery services, and online shopping platforms are now including payment features directly within their applications. This means that users can make purchases or pay for services easily, without needing to open separate banking or payment apps. This trend makes transactions quicker and more convenient for everyone.

4. **Global Outreach of India's Payment Systems**

India is promoting its payment platforms, including UPI and RuPay, in international markets. Their presence in several countries supports easier cross-border remittances and spending by travellers, strengthening India's position in the global digital payments space.

5. **Use of Artificial Intelligence for Payment Security**

Advanced AI technologies are being applied to monitor transactions and detect unusual patterns in real time. These systems help reduce fraud risks, including scams such as phishing and vishing, thereby improving trust and security in digital payment systems.

SUGGESTIONS:

1. The government must attain a straightforward and productive e-payment framework. Strategies used by the government and RBI will encourage credit-only transactions by licensing instalment banks and advancing portable wallets.
2. The government should periodically direct a monetary education mission to make the public aware of the benefits of electronic payment instalments.
3. Capacity-building initiatives for women can facilitate greater acceptance of digital financial services. Financial literacy initiatives among women contribute to economic empowerment and long-term social development.

4. Schools should incorporate financial literacy programmes to strengthen students' long-term financial competence and independence.
5. Boosts all segments for progressively embracing non-money electronic methods of payment instead of money. Plans, for example, Lucky Grahak Yojana and Digidhan Vyapar Yojana, must be kept on empowering electronic methods of payment.

CONCLUSIONS:

The findings highlight that digital payments, particularly through the Unified Payments Interface (UPI), have transitioned from a niche service to a key component of the country's economic activity. The significant growth in transaction volume, which far exceeds the growth in transaction value, reflects a fundamental shift in consumer behavior; digital platforms are now trusted for even the most basic daily transactions.

While this transformation has been impressive, the journey towards a fully inclusive digital economy is ongoing. Continued challenges must be addressed, such as the need for enhanced digital literacy, improved cyber security measures, and better infrastructure in rural areas, to ensure that this growth is sustainable and equitable.

The future holds numerous opportunities, including the potential global expansion of UPI, the introduction of offline payment solutions, and the arrival of a Central Bank Digital Currency. In essence, India's digital payments revolution serves as a shining example of how technology, paired with forward-thinking policies, can drive unprecedented financial inclusion. The groundwork has been established, and with ongoing innovation and strategic focus, digital payments are on track to become a universal and enduring feature of the Indian economy.

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