Digital Payment Trends, Issues and Opportunities in India

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Abstract: By enabling cashless transactions and encouraging a digital economy, digital payment has completely transformed India's financial landscape. The Government of India's (GOI) attempts to adopt digital solutions for Government to Citizen (G2C), Government to Business (G2B), and Government to Government (G2G) services are highlighted in this paper's review of the Indian digital payment ecosystem. The use of tools and technologies to facilitate digital transactions is also covered in the study, which also examines issues including cybercrime and digital literacy.We can draw the conclusion that India's digital economy enables citizens to access effective, efficient, transparent, and accountable services.

Keywords: Corruption, Cashless society, Digital Economy, Transactions

1. Introduction

A form of cashless payment is digital payment. Both the payer and the payee send and receive money using digital methods in digital payments. Another name for it is electronic payment. It is a quick and practical method of payment. Digital payments are a crucial instrument for increasing financial inclusion since they make financial services more affordable and safe.

One of the claimed roles of Digital India is to enable India to become a digitally empowered society and knowledge economy with Faceless, Paperless, and Cashless transactions. The development of digital payment systems was assisted by the revolution in information and communication technologies (ICTs). After demonetization, the digital economy gained popularity. Digital fund transfers have significantly decreased in cost while also becoming faster, simpler, and safer. The government has devised a flurry of discounts and freebies on digital transactions to encourage the transition to a cashless economy. Digital payments lower the infrastructure and operational costs of ATMs and bank branches, as well as the Reserve Bank of India's (RBI) printing expenses.

The internet and mobile phone revolution, which transformed the bank into a little mobile application, contributed to the technological advancement. All forms of mobile wallet, internet banking, unstructured supplementary service data (USSD), unified payments interface (UPI), and payments made using smart phones, laptops, etc. are included among the digital payment methods. The National Electronic Funds Transfer (NEFT), Real-time gross settlement (RTGS), Immediate Payment Service (IMPS), and other financial services can be accessed via the institution's website or mobile app by using Internet financial. Digital cash can be carried around in a mobile wallet. You can attach a credit card or debit card to the mobile wallet to make

purchases, or you can load money into the mobile wallet.

A crucial enabler for promoting growth and development is the digital payment system.The Government of India has introduced a variety of efforts for the digital economy, including the Aadhar Enabled Payment System (AEPS), USSD, and RU-PAY Card. For those who don't have debit/credit cards or mobile phones, the AEPS is quite useful. Without internet connectivity, digital payments can be made using USSD technology. You can check your account balance, create a small statement, and send money using this USSD-based communication. This service is offered in 12 regional languages, including Bengali, Gujrati, and Punjabi. Digital payments can do away with things like fake currency, money laundering, terrorism funding, and unlawful trade.

Offering a wide variety of payment choices to users is made possible by digital payment systems. Debit cards, credit cards, online banking, e-Wallets, mobile banking, etc. are some of these alternatives. The e-Payment system is simple to use and doesn't call for specialised skills.

The current state of the digital economy and its potential to combat corruption are examined in this essay. The future of the Indian economy will be a digital one, with no physical movement of money. Every payment will be sent and received electronically. The problems of a cashless society as well as the benefits and drawbacks of currency have been examined in this essay.

2. Review of Literature

The analysis of academic journal articles, conference proceedings, thesis, books, and internet news that pertain to the topic and research field. When a wide range of payment options reached the use by customers in various nations in 2010, the financial technology was widely introduced. The adoption of various payment intermediaries, such as USSD, UPI, and local ones like Paytm in India, has brought the cashless society closer than anticipated.

The two largest currency note denominations in India, the 500 and 1000 rupee notes, were demonetized by the Prime Minister of India on November 8th, 2016, with a few exceptions. The fact that such a sizable payment was deemed invalid in a single declaration shocked the entire country, even though it was not the first time the Indian government has delayed taking such action. This step's primary goal was to combat black market transactions, corruption, and the use of fake money to fund terrorism.

In many developed nations, including the UK, Sweden, and other nations, using automated payments as an element of the economy was implemented without any problem. Several African nations, including Kenya, South Africa, and Tanzania, started using less cash in their financial operations at the same time and set an example for electronic payment systems. According to Garg and Panchal (2017), Agrawal (2018), Udeh and Bassey (2018), and others, an economy is said to be cashless when the majority of purchases are made with digital currency. This doesn't mean that cash payments aren't accepted; rather, it means that the amount of transactions involving fiat currency is kept to a minimum, resulting in high levels of cash flow transparency.

Due to the fact that contactless

payments offer a hygienic alternative to conventional payment methods, they have acquired tremendous acceptance, especially in reaction to the COVID-19 outbreak. Tap-and-go payments have become possible because to Near Field Communication (NFC) technology and QR codes, which minimise physical touch between customers and point-of-sale terminals. The use of contactless payments has also improved the convenience and effectiveness of fare collection systems in public transit.

New trends are impacting how we transact and interact financially as the environment of digital payments changes at an unprecedented rate. Some of the themes driving this shift include mobile payments, contactless payments, peer-to-peer payments, cryptocurrency, and biometric authentication. In order to traverse the constantly evolving world of digital payments and take advantage of what they have to offer, it is crucial for researchers, policymakers, and industry stakeholders to comprehend these trends.

3. Objective of the paper

To evaluate the current trends of digital payments in India:

- Identify and analyse the platforms, technologies, and common digital payment methods used in India.
- Examine the expansion and uptake of digital payment solutions across a range of industries, including retail, e-commerce, banking, and government services.
- Determine the effect of emerging trends in digital payments on India's financial inclusion, consumer behaviour, and national economy.

To examine the main problems and difficulties in the digital payment landscape in India:

Examine the security and privacy issues raised by digital payments and determine how effective the current security solutions are.

Examine the legal and policy framework that governs digital payments in India and assess how well it is able to manage new problems.

Identify infrastructure and technology constraints that prevent the widespread use of digital payment systems, especially in rural areas.

To determine the possible advantages and prospects for digital payments in India:

Determine the financial effects of emerging trends in digital payments on micro- and small-sized businesses (SMEs).

Evaluate how using digital payments can increase financial inclusion and lessen the need for in-person interactions.

Examine the sector of digital payments' potential for innovation and entrepreneurship as well as its contribution to India's digital economy.

By achieving these goals, the study paper hopes to offer a thorough overview of India's digital payment landscape. It will be a useful tool for decision-makers, researchers, business experts, and other stakeholders, empowering them to make wise choices, create winning plans, and realise the full potential of digital payments in India.

4. Necessity for Digital Payment

Comparatively speaking, using digital payment methods is more secure and convenient than using cash for transactions. This type of

payment encourages greater accountability and transparency, lower transaction costs, and a smaller grey or informal sector.

Since the RBI had to pay 7935 crores to print the newly designed currency during the demonetization period, there is no additional cost associated with producing money.

Saves money and time: Digital money is susceptible to data leaks and online identity theft, but physical cash is more susceptible to tax evasion, the use of illicit funds, and counterfeit money. For instance, India saw its greatest data breach last month, endangering 3.2 million debit cards. The costs related to data breaches are also increasing in India.

Spending boosts economic growth: Digital money is exposed to data breaches and online identity theft, unlike physical cash, which is subject to tax evasion, the use of illicit funds, and counterfeit money.

5. Digital Payment Ecosystem

As shown in Figure 1, a digital payment ecosystem has three fundamental characteristics. The first category is companies that offer the network infrastructure, computer hardware, and software required for digital payments. Hardware components include POS terminals, computer hardware, mobile phones, and QR code scanners, among others. Software components include internet connectivity and payment apps like BHIM, Paytm**,** PhonePee, and SBI Yono. The pillars of the digitalization infrastructure are widespread mobile network coverage and easy access to high-speed internet.

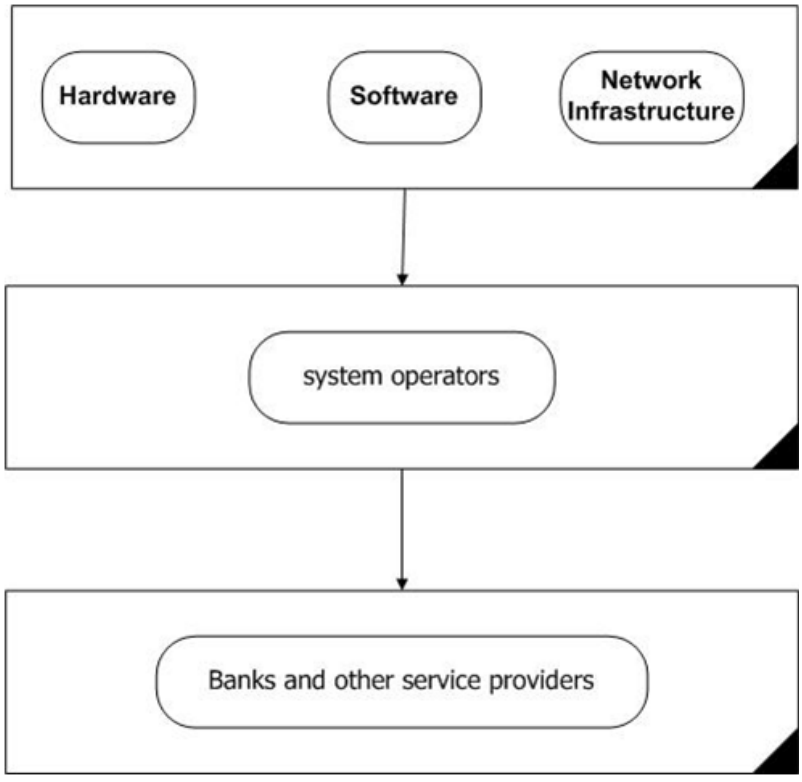

Figure 1: Digital Payment Ecosystem

System administrators make up the second group. They manage access and transaction standards to guarantee accountability and interoperability. The National Payments Corporation of India (NPCI) oversees all retail payments in India. The Reserve Bank of India (RBI) and the Indian Banks Association (IBA) gave guidance and support in its establishment. The third category incorporates banks and other businesses that control payment processing. Among the top ten promoter banks are State Bank of India, Punjab National Bank, Canara Bank, Bank of Baroda, Union Bank of India, Bank of India, ICICI Bank, HDFC Bank, Citibank, and HSBC.

6. Types of Digital Transaction

Transactions involving digital payments take place between the government, businesses, and citizens. There are several classifications for interaction in digital payments, including: Business to Government (B2G), Business to Business (B2B), Business to Citizen (B2C), Citizen to Government (C2G), Citizen to Business (C2B), and Citizen to Citizen (C2C) are all examples of government to government relationships. G2G transactions, such as funding and budget allocations between government agencies, are common. G2B refers to government payments made to businesses, such as startup grants, GST refunds, etc. G2C refers to transactions between the government and citizens, such as welfare programmes, sales, pensions, scholarships, and fellowships. Government and business engagement (B2G). Where business organisations pay for various services like paying GST bills, licence and permit fees.

This is how the public sector and the private sector of commerce interact. PMMY, or Pradhan Mantri Mudra Yojana. The Make in India programme incorporates significant new efforts under the Pradhan Mantri MUDRA Yojana (PMMY), which was launched by the Indian government. For the working capital portion of the loan, the MUDRA Card is a debit card that is issued against the MUDRA loan account. The borrower can use the MUDRA Card for a number of draws and credits to manage the working capital limit effectively and reduce interest costs to a minimum. The MUDRA Card also aids in the digitization of MUDRA transactions and the development of the borrower's credit history. MUDRA Card can be used throughout the nation to withdraw money from any ATM or mini ATM and to make payments at any "Points of Sale"

G2C activities are those in which the government funds the recipient and the recipient is a citizen. Examples include the Post-Graduate Indira Gandhi Scholarship for Single Girl Children, Post-Graduate Merit Scholarship for University Rank Holders, and Post-Graduate Scholarships for Professional Courses for SC/ST Candidates. The governments have launched many projects in this category. Some of these G2C applications include online transactions for salaries, pensions, and scholarships, among others. Government should create additional applications for various areas so that citizens can receive direct payments.

G2G projects aid in increasing the effectiveness of internal government processes. G2G services such as e-Procurement and e-Courts are examples. The Ministry of Corporate Affairs Department is the most prevalent and in-depth example of G2G.

Table 1: Digital Transaction Types

		Payee		
		Government	**Business**	**Citizen**
Payer	**Government**	**G2G** Budgetary allocations, Funding of programs	**G2B** Grants, Payments for Goods and Services	**G2C** Welfare programs, salaries, pensions
	Business	**B2G** Taxes, Fees for licenses and permits	**B2B** Payments for good and services	**B2C** Salaries and Benefits
	Citizen	**C2G** Taxes, utilites	**C2B** Purchases	**C2C** Gifts, Remittances

7. Digital Payment Mediums in India

Digital payments come in many forms and configurations. Debit/credit cards, online banking, mobile wallets, digital payment apps, the Unified Payments Interface (UPI) service, Unstructured Supplementary Service Data (USSD), bank prepaid cards, mobile banking, and others are a few of these options. These facilitate quicker transaction cycles and offer a good substitute for conventional payment systems. Below are a few of the most widely used digital payment options.

a. Unified Payments Interface (UPI): A method called Unified Payments Interface (UPI) allows several bank accounts to be integrated into a single mobile application. The software combines many banking functions, enabling quick and safe financial transfers as well as merchant payments on a single platform. For mobile devices running Android, Windows, and iOS, each bank has its own UPI app.

b. Unstructured Supplementary Service Data (USSD): Together with the National Payments Corporation of India (NPCI), the cutting-edge payment service *99# operates on the Unstructured Supplementary Service Data (USSD) channel. Transactions are carried out using GSM-based technologies and SMS. It is a platform that serves as a conduit for banking and telecommunications financial services. With this service, it is possible to conduct mobile banking transactions using a simple feature phone without any need for a mobile internet access.

c. Aadhaar Enabled Payment System (AEPS): Aadhaar Enabled Payment technology (AEPS) is a technology created by the National Payments Corporation of India (NPCI) that enables individuals to conduct financial transactions on a Micro-ATM by providing only their Aadhaar number and validating it with the use of their fingerprint/iris scan. People can transmit money from one bank account to another using this payment mechanism by using just their Aadhaar numbers. People can send money from their account to any account, regardless of the bank where the recipient's account is maintained, because the system is based on a centralised server. No physical branch visit is required, and nothing more is required than a signature on a paper.

d. Cards: Cards are among the most popular forms of payment and include a wide range of features and advantages, including convenience and payment security. The ability to utilise debit/credit or prepaid banking cards to make other digital

payments is their key benefit. Customers can make a cashless payment by retaining card information in digital payment apps or mobile wallets, for instance. Visa, Rupay, and MasterCard are among some of the most reputable and well-known card payment systems. Banking cards are accepted at point-of-sale (PoS) terminals, digital payment apps, internet transactions, etc. A prepaid card is a kind of payment device that you load money onto before making purchases. The customer's bank account may not be connected to the type of card. However, a bank-issued debit card is connected to the customer's bank account.

e. QR Code: A QR code is made up of white background with a square grid of black squares that may be read by a camera or other image device. The item to which the QR links has information on it. Person to Merchant (P2M) mobile payment solution is called Bharat QR. These three payment networks—NPCI, Visa, and MasterCard—mutually developed this answer. When BQR codes are implemented at merchant sites, customers can use BQR-enabled mobile banking apps to pay their utility bills without providing the retailer with any user information.

f. Mobile Banking: The act of undertaking banking or financial transactions using a smartphone is referred to as mobile banking. With the development of multiple mobile wallets, digital payment apps, and other services like the UPI, the reach of mobile banking is only growing. Customers can download any of the many banks' own applications to conduct financial transactions at the touch of a button. The phrase "mobile banking" is used to refer to a broad range of services which come within this category.

g. Internet Banking: Online banking is the practise of doing financial transactions. Many different services, including as transferring money, opening new fixed or periodic deposits, cancelling accounts, etc., may fall under this category. Electronic banking or virtual banking are other names for internet banking. The National Electronic Funds Transfer (NEFT), Real Time Gross Settlement (RTGS), or Immediate Payment Service (IMPS) are the three most common online fund transfer methods utilised with internet banking. Through their websites, banks provide customers with a variety of financial services, and those customers can access their accounts by entering a username and password. Internet banking services can be used at any time and on any day of the year, unlike visiting a physical bank, which has time constraints.

h. Point of sale (POS): PoS terminals have historically been understood to be those that are deployed at all stores where customers use credit/debit cards to make transactions. A handheld gadget is usually utilised to read bank cards. However, as a result of digitization, the reach of PoS is growing and this services has become accessible via internet browsers and mobile platforms as well. PoS terminals come in a variety of forms, including physical, mobile, and virtual. The PoS terminals that are physically stored at shops and retailers are those. Mobile PoS terminals, on the other hand, function via a tablet or smartphone. Due to the fact that they are spared the expense of purchasing pricey electronic registers, this is excellent for small business owners. Web-based apps are used by virtual PoS systems to handle payments.

I. Near Field Communication (NFC): You may simply pay for goods and services at businesses using POS (Point of Sales) terminals without having to swipe your credit card thanks to their wireless transmission of magnetic waves. You can use this service by downloading an app that supports MST, and your phone should also have NFC capabilities. After completing it and registering your card information, you can use your phone to make contactless purchases at any POS terminal at a retailer.

j. Digital wallet payment system:This platform allows users to add money into their wallets. Similar to when e-Wallets first became available, you can add money via Digital Wallet apps. The restriction is that you can only transfer funds to the same wallet. This implies that if you have the PayTM app or the Buddy app from SBI loaded on your phone, you can only send money to someone else who also has those apps installed on their phone. Other e-wallets like Mobikwik, Freecharge, Oxigen, Reliance Money, Paypal, Buddy, and Yes Pay are also available in the online market.

8. Benefits of Digital Payment

Governments can save millions of dollars in taxpayer money by eliminating the cost of coin and note production in a cashless society. Below are descriptions of a few of the more significant advantages:

Economic growth: People may complete more transactions in less time thanks to convenient cashless transactions. Increased production and supply will result from increased demand for goods, which will also result in the creation of jobs. Additionally, as more transactions take place online, the government will have access to more data for analysis and improved policy formulation.

Reduced Expenses: The influx of cash can be controlled with more digital payments, which lowers their production and distribution costs. The average lifespan of paper money is six years, and it is quite expensive to produce both money and coins. Additionally, manual cash accounting at various levels is very expensive and can be eliminated once the economy is fully digitised. The tiny adjustment increases the likelihood of accuracy while ensuring efficiency at a higher level in businesses and the government. If people may carry less cash, the risk of theft in some situations can also be decreased

Transparency and convenience: All transactions are accessible because of digital payments. Since everything is digitally recorded, it is possible to always confirm transactions and keep track of them. It might be challenging to hold individuals responsible for any additional expenses when using cash payments. Because there are digital records for it, fraud may be found more quickly. For a lot of folks who might find it difficult to withdraw cash or carry it around, online transactions are also quick and convenient.

Consumer Safety & Protection: You are aware that all of your money is lost when you lose your wallet. If you lose a digital payment instrument, you can simply block it, so reducing your financial risk. Adopting digital payments has enormous advantages to the nation as well.

Decreased Crimes: As long as people carry cash, there is a risk of theft; however, this risk can be decreased by switching cashless. To stop online fraud and identity theft, the government must, however, take action.

Higher Revenue: Transparent transactions have the indirect benefit of increasing tax revenue.

9. Issues in Digital Payment System:

Below is a discussion of the key problems with digital payment systems.

***Lack of trust:** One of the biggest problems facing internet users today is simply a lack of trust. Electronic payments are a relatively new system with a poor track record when it comes to fraud, abuse, and reliability. The danger involved in online transactions makes it difficult for customers to feel secure using privacy-preserving methods.

***Lack of Awareness:** Making a payment online is not simple. Even those with education have difficulties while making payments online. As a result, they always favour traditional purchasing over online shopping.

***Lack of security:** This digital system lacks security, dependability, and privacy. Client/server side risk, transaction transfer, and infection risk are all examples of security risks. Vishing attack and phishing assault have long been controversial.

***Increased Costs:** Costs associated with setting up and managing e-payment systems may increase for your company. To prevent unauthorised access to critical data in your infrastructure, you will need money.

***Legal Issue:** The cyber regulations that regulate digital transactions are not uniform across nations and are not very clear. People are unable to enter into electronic contracts due to these legal issues.

10. Conclusion

Digital payment transactions can ensure that an economy grows quickly. Going cashless makes guarantee that bank account transactions are properly checked, which will lower the bribery system. Such a replacement entails progressively eliminating paper money by adhering to the right procedures, rather than removing currency notes instantaneously. Due to a lack of digital literacy, many consumers are still unaware of cashless transactions. To realise the vision of Digital India, significant infrastructure development is needed. Government and citizens should collaborate to provide the infrastructure and technology required to digitise India. With fewer cash usage, printing and handling costs can be decreasedAdditionally, less money means less chance of supporting terrorist attacks or other disruptive societal behaviour. Last but not least, if the cash itself is deterred from being used, fighting counterfeit money will also be simpler.

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