

Impact of Payment Innovations on Modern Life

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ABSTRACT

Modern life is driven by technology and innovation. Innovation is changing the face of business. Innovations have also changed the way payment systems are viewed. The latest technology has transformed traditional cash-based payment systems into a more efficient and effective cashless payment system. Digital payments are considered the most favored payment method around the world, including India. With the Government's "Digital India" initiative, the spread of the Internet, the spread of smartphones, and the adoption of technology, digital payments have proliferated in India since 2014. Our Country has massive potential in digital payment. As of October 2021, the country had around 1.18 billion mobile connections, 700 million Internet users, and about 600 million smartphones. With the passage of each quarter, this number is going on increasing. With about 25.5 billion real-time payment transactions, India ranked first in the world in terms of the number of transactions in 2020.

Keywords: *Digital India, Digital Payment, Innovation, Modern life*

1. Introduction

Technology flies beyond dimensions and borders. The advances in technological innovations have made life much easier and it essentially includes the act of payments globally, in addition to facing and tackling various challenges in security and issues related to competition amongst the firms or companies venturing in these initiatives. The innovations in major area are more accustomed to new innovations and payments. Global trade is eased by the new technical advancements of making the payments. This adds to the ease of exchange, encourages abolition of paper-work systems of exchange, spending of more time doing business, lowering the cost for companies who find need for cybernetic employees and cutting other connected business costs. Globalization and cross-border trade is being made easier with innovations of technological systems which allows transactions between people, or even states. Owing to being e-friendly, technology may even be more acceptable in future in making of payments since it reduces the business costs enormously. More and more folks find the means to transact online easier owing to the affordability and other benefits. As per the survey conducted by Ipsos Research commissioned by PayPal showed that shopping over the internet was about 87% by individuals who once do e-commerce shopping. 82% of goods involved travel goods and services in the e-commerce business. The study on this paper will examine the general update relating to payment innovations and its impact on the livelihood in this modern era. The paper will also give a limelight on what is to be expected as consternations of payment innovations.

2. Result & Discussion

The Coronavirus pandemic assumed a significant part in driving up this reception of computerized installments. It encouraged monetary incorporation, making monetary administration more available, as indicated by the Worldwide Findex 2021 data set. The review saw how monetary consideration worked on over the course of the past ten years, with the quantity of individuals holding financial balances universally ascending from 51% in 2011 to 68% in 2017.¹ The most recent overview views that as 76% of grown-ups universally have a ledger, either through a monetary establishment or through a versatile cash supplier. With worldwide lockdowns set up during the pandemic, conventional monetary administrations took the computerized course to make their administrations open. As observed, generally it had been helped by the buyer reception of installment systems like the brought together Unified payment interface (UPI). The reception of the UPI payment logged a three-time expansion in exchanges and worth during the financial year 2020-21 following the pandemic. For instance, one of the first credit cards was introduced in 1914 by Western Union as "Metal Money." This was a loyalty card for exclusive customers, granting a line of credit without surcharges. The first universal credit card that could be used to make purchases at multiple retailers was introduced by the Diners Club in 1950. U.S. banks began offering credit cards as payment solutions in 1958. India was generally a credit card market, in contrast to the U.S. where Visas remain prevailing. In any case, while the use of Visas arose, the issue of credit cards in India developed essentially at a build yearly development rate (CAGR) of 26% and 23%, separately in 2019 and 2020. While the pandemic helped advanced digital payment, looking at the development in installation systems.

3. Innovation and Growth of Digital Payments

The Government of India is dedicated to extend digital undertakings in the Indian economy, and with improve the quality and substance of the fiscal area, as well as ease of living for nationals.² Digital fee undertakings have significantly raised on account of matched exertions of the Government as a whole, in addition to all stake possessors worried, from 2,071 crore transactions in FY 2017-18 to 8,840 crore undertakings in FY 2021-22. [3]. In the last five years, differing smooth and convenient fashions of digi-payments, including Bharat Interface for Money- Unified Payments Interface (BHIM-UPI), Immediate Payment Service (IMPS), and National Electronic Toll Collection (NETC) have reached great heights and have transmuted payment innovations' environment by growing person-to-person (P2P) in addition to person-to-merchant (P2M) payments.⁴ BHIM UPI has arose as the favorite fee style of the citizens and has written 803.6 crore mathematical fee transactions accompanying the worth of Rs. 12.98 lakh crore in January 2023. The following table (Table 1.) shows the total number of digital payment transactions made during the course of the previous five financial years and the current financial year:

Table 1: Total number of digital payment transactions of the previous five financial years

Financial Year (FY)	Total number of digital transactions (in crore) #
2017-18	2,071
2018-19	3,134
2019-20	4,572
2020-21	5,554
2021-22	8,840

2022-23	9,192*
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* Data till 31st December 2022, # Note: Digital payment modes considered are BHIM-UPI, IMPS, NACH, AePS, ETC, debit cards, credit cards, NEFT, RTGS, PPI and others, Source: RBI, NPCI and banks⁵

Following (Table 2) are the total amounts of digital payments made throughout the last five financial years and during the current financial year:

Table 2: Total number of digital payment transactions of the previous five financial years

Financial Year (FY)	Total value of digital transactions (in lakh crore) #
2017-18	1,962
2018-19	2,482
2019-20	2,953
2020-21	3,000
2021-22	3,021
2022-23	2,050*

*Data till 31st December 2022 # Note: Digital payment modes considered are B H I M -UPI, IMPS, NACH, AePS, NETC, debit cards, credit cards, NEFT, RTGS, PPI and others. Source: RBI, NPCI and Banks

Growth of Digital Payments in India, spontaneous change of living easy and useful digital payment solutions have aided ease of living for residents, financial inclusion, and development of trade and economy.⁶ During the Pandemic, availability of contactless digital fee resolutions in the way that BHIM-UPI facilitated friendly outstripping and progression of trade including limited seller. The benefits of payment innovations are in this manner [7]

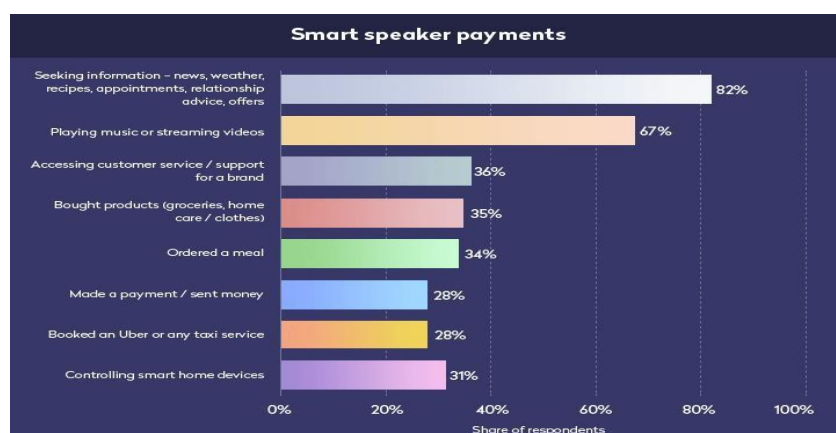
- Instant and nearby mode of fee: Unlike cash, services may be promptly transferred to the recipient report utilizing digital fads like BHIM-UPI and IMPS. Moreover, utilizing the BHIM-UPI fad, individual can effect a digital undertaking by way of cellular telephone using travelling number or smooth-to-relive virtual fee address (electronic mail-like address). BHIM-UPI has authorized approach to multiple Bank reports in a distinct movable app, facilitating ease of fees.
- Improved Financial Inclusion: Digital payments provide anytime, anywhere access to accounts, making it easy for citizens to receive payments on their accounts and also make payments via their phones. People who may have been deterred by the time and travel costs associated with physically accessing a bank branch for transactions can now conveniently access the bank account digitally and enjoy various benefits of being part of the formal banking system and financial inclusion. The recently launched UPI 123PAY enables feature phone users to conduct digital transactions via UPI in supported voice mode, facilitating digital transactions and financial inclusion in rural areas.
- Increased transparency in the government system: Previous cash payments were vulnerable to leakage (payments that do not fully reach the recipient) and bogus recipients, particularly in relation to social security benefits through government transfers. Benefits are now transferred directly to the target recipient's account via digital payment methods (direct benefit transfer).
- Improved speed and on-time delivery: Unlike a cash payment, which occurs at the speed of its carrier, digital payments can be made near instantaneously regardless of whether the sender and recipient are in the same city, county, or country.

- **National Electronic Toll Collection (NETC) System:** The NETC system enables the customer to make electronic payments at NETC enabled toll plazas on the highway without having to stop at the toll plaza Radio Frequency Identification Technology.
- **Bharat Bill Payment System:** The Bharat Bill Payment System (BBPS) provides consumers with an interoperable and easily accessible bill payment service through multiple channels such as Internet Banking, Mobile Banking, Mobile Apps, BHIM-UPI etc. Citizens can easily make bill payments anytime, anywhere through BBPS.
- **Improved Access to Credit:** Unlike cash payments Digital payments automatically create the user's financial footprint, improving access to formal financial services, including credit. Banks and other lending institutions can use digital transaction histories to make cash flow-based lending decisions for both retail and retail loans.

The Evolving impact Of Digital payments In emerging markets, digital payments or alternatively called as Fintech, is taking on a banking role to benefit from cheap deposits and licensing exemptions; 2021 saw fintech announcing plans to buy banks. For example fintech company like Paytm in India. The application began as payment instrument, then extended web-based shopping services. In 2015, Paytm began giving banking services and got a regulator license in 2017. An organization like Amazon or Apple in the U.S. would not be able to make a comparative progress to banking services because of current regulations. This is additionally the justification for why fintech in developing business sectors can be more creative. These companies have insignificant administrative impedance until they arrive at a minimum amount. The banks route to coordinated effort or buyouts to take on new innovation administrations into the financial framework. In 2021, merger and acquisition (M&A) movement started mounting. Digital currency is currently quite possibly of the most discourses subject in the realm of payments.⁸ Earlier in September 2022, the U.S. treasury suggested investigating the production of a computerized dollar or a central bank digital currency (CBDC). The main reason for the fame of digital currencies is Fintech innovation in this space. The fintech functioning in this space offers much something beyond being an elective type of installment. There will undoubtedly be fascinating experiences from the fast advancement occurring in certain areas, which are delayed to flourish in mature business sectors either due to administrative limitations or as a result of a lot of interest in current innovation.

Home assistants or smart speakers permits its clients to provide voice orders to a speaker and get a voice response consequently. The client can provide voice orders for different things, for example, getting weather conditions refreshes, traffic update, requesting from Zomato or booking a taxi from Uber. Numerous monsters have put resources into the assembling of brilliant speakers. Amazon was the first to think of its most memorable brilliant speaker in the year 2014. Google Home and Apple joined Amazon in the year 2016 and 2017 separately. The speakers which evolved from the smart assistants were primitive in nature as they were restricted to just phone devices. The smart speakers also started to go mainstream with the growth of home automation. 35% of users use smart speakers for buying products like home care, groceries, and clothing as per the report of Statista (Figure 1)

Fig. 1: Data on usage of Smart Speakers



According to Juniper Research, portable wallet transaction volume will grow up to 49 billion globally by 2023. For that reason many enormous organizations like Apple, Google, and Samsung have begun giving versatile wallets to encash this transaction. In any case, that large number of wallets are brand and brand-specific wallet. Before very long, more organizations will attempt to make their own image explicit wallet. Organizations can undoubtedly evaluate the client's use with the assistance of a portable wallet. There are a few players that are engaged with a portable wallet. For instance, a versatile wallet is created by one organization suppose Google. Then the dependability cards and Visas are made by another organization. There are likewise numerous shippers which utilizes a similar Google wallet. In simple words, a mobile wallet comprises of various components that cooperate to deliver simple, speedy, and credit only installment administrations.

4. Regulatory and security concerns

The Reserve Bank of India (RBI) is the largest regulatory organization in India responsible for overseeing digital payments in India. The RBI has laid down several recommendations and regulations for digital payments, including KYC (Know Your Customer) standards, two-factor authentication and limits on transaction amounts. The government has also introduced several measures to promote the use of digital payments such as India campaign and the launch of BHIM app. In addition, incentives such as discounts and discounts have been set to encourage the use of digital payment methods. **Indian regulations for Digital Payments** Various regulatory bodies in India control the digital payments industry, including the RBI, the NPCI and the Ministry of Electronics an Information Technology (MeitY) [10] Reserve Bank of India and National Payments Corporation of India The RBI regulates and monitors digital payments systems in India, such as electronic fund transfers, prepaid payment instruments and card payments. It provides rules and regulations on digital payment system security, risk management, customer protection and other factors. The NPCI operates and manages payment systems such as UPI, Immediate Payment Service (IMPS) and Bharat Bill Payment System (BBPS). It is responsible for creating and operating these systems and for ensuring their efficiency and security and resolving any payment-related issues. Payment and Settlement Systems Act, 2007 All digital payments in India, including those made through mobile wallets and prepaid cards , and online platforms are subject to the Payment and Settlement Systems Act of 2007 [11] The law creates a framework for the supervision and monitoring of digital payment service providers as well as standards for customer protection and dispute resolution. In addition, it authorizes and monitors payment system operators and issues regulations to ensure the security and efficiency of the digital payment industry.

5. The Ministry of Electronics and Information Technology

MeitY is responsible for developing the country's digital infrastructure, which includes e-governance, digital literacy and digital payments. It works with other regulators and industry players to promote the adoption of digital payment systems in India.

6. Pradhan Mantri Jan Dhan Yojana

With the introduction of new payment systems and implementation of various initiatives to promote digital payments, the regulatory framework for digital payments in India has changed significantly in the last few years. To improve financial inclusion and promote the use of digital payments, the government has launched numerous projects including Digital India and Pradhan Mantri Jan Dhan Yojana (PMJDY). The Indian government is implementing e-RUPI, a cashless and contactless digital payment option. aims to improve the effectiveness of Direct Benefit Transfer (DBT) in the country. These initiatives have built a robust digital finance ecosystem and paved the way for a cashless economy. Overall, the regulatory environment for digital payments in India is strong and expanding, with a focus on maintaining security, protecting customers, and encouraging innovation and use of digital payment systems.

7. Security and privacy associated with digital payments in India

In India, security and privacy are critical features of digital payments. The RBI has issued guidelines for the security of digital payments, including the introduction of two- factor authentication and encryption for sensitive data. In addition, the draft Digital Personal Data Protection Act of 2022 aims to regulate the collection, storage and use of personal data by companies involved in digital payments. In addition, the government released the National Cyber Security Policy 2013, which aims to protect key information infrastructure from cyber threats. Despite these precautions, data breaches, phishing attempts and identity theft continue to pose a problem for digital payments in India. Consumers need to be aware of these risks and take necessary security precautions, such as using secure payment methods and regularly monitoring their transaction history.

To ensure the security of cardholder data during digital transactions, merchants in India must comply with the Payment Card Industry Data Security Standards (PCI DSS). The PCI-DSS framework requires merchants to establish a secure network, keep cardholder data secure, regularly monitor and test security systems, and maintain an information security policy. Merchants must also follow RBI's KYC standards, which require them to verify the name and address of their customers before onboarding. Adhering to these principles protects merchants from fraud and data breaches while increasing customer trust in the digital payment system.

8. Conclusion and future outlook

The Coronavirus pandemic has nudged monetary consideration - driving a massive expansion in digital payments in the midst of the worldwide development of formal monetary administrations. According to the Global Findex 2021 data collection, this growth created new financial opportunities by reducing the orientation gap in account ownership and strengthening the family unit to more easily handle financial shocks. Beginning around 2021, 76% of adults globally will have an account with a bank, another financial institution, or a flexible currency provider, up from 68% in 2017 and 51% in 2011. Currently, 66% of all adults initiate or receive digital payments, with the availability increasing in developing countries from 35% in 2014

to 57% in 2021. 71% of people in developing countries now have a bank, banking organization, or mobile money provider account, up from 42% in 2011 and 63% in 2017. Mobile payment methods fueled a tremendous expansion in monetary consideration in Sub-Saharan Africa. 3/4 of grown-ups now have a bank or mobile money account; gender gap in account ownership narrows. Since innovation is advancing quick, organizations should put resources into advancements in order to have the option to create, develop and use innovation that offers what the client wants quick, secure, solid, adaptable and viable method for installments. Since for instance all individuals on the planet may not have financial balances, arranged cards might introduce a less complex and better electronic method for transmitting installments without laying out a responsibility with the banks. Organizations deciding to put resources into installment developments when they are having alluring innovations which may not really be client put together may procure significant yields with respect to such speculation. Aside from the related higher dangers, these organizations will get an opportunity and experience to forming, and dealing with the improvement of items. Another methodology incorporates effective financial planning at last option phases where, for instance, an organization might secure alternative current firm and foster the items while depending on the partners to the gained firm. The payment mechanism, which aims to bring more efficiency and transparency into the system, is shifting from cash to contactless payments to mobile money in India. This development was made possible by a series of measures introduced to contain systematic risk in the payment and settlement system. Apart from the regulatory push, government initiatives like JAN DHAN YOJANA, DBT etc. have given a major boost to this change. The emphasis on digital India would further intensify the movement and help cover more and more businesses and people and make payments quicker and easier. In the last 10 years, India has witnessed this major shift from cash-based payment system to electronic payment system. This was mainly due to various measures taken by the Government of India (GOI) and RBI, including the introduction of the Payment & Settlement Act, establishment of RTGS and NEFT and National Payment Corporation of India (NPCI), regulation and promotion of alternative channels and Payment gateway and policies or security measures for the electronic transactions. This change has also been increasingly supported by the advancement of telecommunications and computer technology, both in terms of speed and reduced costs. While the electronic payment system is experiencing impressive growth, many are yet to reap the benefits of the modern electronic payment system. They are now generally limited to Tier 1 and Tier two locations. So the benefit was limited. The digital payments landscape in India is expected to continue its growth trajectory in the coming years. With initiatives like UPI, Bharat QR and the introduction of digital wallets in India, the use of digital payments is likely to continue to grow. The COVID-19 pandemic has also accelerated the shift towards digital payments as people increasingly avoid physical contact with cash. As for the future prospects, there is growing interest in leveraging new technologies such as block chain and artificial intelligence to increase the security and efficiency of digital payments. The government is also expected to continue its focus on promoting digital payments through various initiatives and policies. Overall, the future of digital payments in India looks promising.

It is seen that the payment innovations have been explored by government, private, public and corporate sector as well. As it is presented now, the innovations seem to be a boon but as time flies the challenges are to be faced too. The payment innovations have developed to go past boundaries. Payment innovations might be assembled in mechanical advancements and administration or processes innovation. Companies may be compelled to engage in payment innovations due to emerging requirements, such as the need to combat forgeries, enhance an innovation that has already been adopted by other companies, or respond to the demands of already-adopted technological and service innovations. Digital payments have emerged as a significant force in the Indian economy, driven by the government's push towards a cashless economy and technological improvements. The regulatory environment for digital payments in India has been constantly expanding to keep pace with the changing landscape, with the PSS Act providing a solid foundation for ensuring security and privacy. To ensure the proper operation of the digital payments industry, merchants

must adhere to certain standards. As India transitions to a more digital economy, the future prospects for digital payments are bright as the sector is likely to grow rapidly. The implementation of new technologies such as UPI and e-RUPI as well as the increasing penetration of smartphones and internet connections will further drive the expansion of digital payments. The transition to a cashless economy is expected to accelerate over the next few years, providing greater relief and financial inclusion to millions of Indians.

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