TRENDS AND CHALLENGES IN ADOPTION OF E-PAYMENT SERVICES IN INDIA

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ABSTRACT

Electronic payment services are vastly growing market around the world due to its convenience and quickness. After demonetization in India during 2016, the proliferation payment systems reached the peak with in-house service providers and global operators explore here. The proposed analysis work focus on creating conscious about different factors related to e-Payment Systems with its cons, objections and security features. The historical data and referent have been taken out in order to acquire essential data about electronic payments systems. This study on outlook of e-payment systems was carried out following search of several research directions on digital payment services. As there are multiple service providers, the digital vision will be fully utilized only by raising awareness among people and society with the huge popularity of internet and technology. To realize their success parameters, it is vital to examine the strategies of general consumers, cyber merchants, network managers, banks and other public sector organizations. Disappointed experiences may lead to establishment of a new payment system. Our results highlight straight forward explanations of the success factors of electronic payment services in India based on variety of features. The study also reveals the popularity of e-payment services in India on various criteria.

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***Keywords:** Electronic-Commerce, Payment Gateway, Digital Payment, Security.*

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Introduction

E-Payment service is a element of e-commerce transaction o contain electronic payment for purchasing goods and services provided through the internet. Digital payment is a monetary interchange that was carried out online connecting buyers and sellers by electronic means without using actual cash. The aim of this procedure is normally some type of digital fiscal tool such as encrypted credit card digit, electronic cheques or Digi-cash. Online e-payment system is a function that enables the public to take online disbursement for their shopping. We have analyzed common payment gateways in India including PayPal, Google Pay, Paytm, Amazon pay, Phonepe. The proposed work gives an in depth description aimed to increase consciousness on electronic payments. The varied definitions of an E-payment and its connected aspects had been provided. Payment services covered by essential protection concerns of E-commerce. E-payment gateway representation and the clarification of its miscellaneous safety requirements and mechanisms are discussed.

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Review of Literature

SujthT.S and Julie C.D (2017) In a conceptual paper the researchers have studied about various e-payment systems (such as E-wallets, UPI, Plastic money, net banking, AEPS). They identified certain advantages like convenience, low risk and promptness and there are also some challenges like risk of data theft, security in the digital payments. Emergence of e-commerce is a reason for the growth of online payment system is being analyzed in this study. They suggested that if more incentives and proper security of transaction is assured, it will improve the volume and value of digital transactions. They anticipate that there is a bright future for digital payments, since its usage shows increasing trend.

Deepanker Roy and Amerendra Sahoo (2016) This paper explains the urge to rejuvenate the payment system and transpose from paper based to electronic mode of payment system to enhance efficiency and save cost. They found that payment system of any advance and sophisticated countries experience various risks and issues which hinder the effectiveness of monetary policy of the economy and adversely affect the confidence of users. They enunciate that transformation in payment system from cash to click will take place at a quicker pace since e-commerce is ubiquitous. Therefore the central banks regulators should take appropriate efforts to minimize risks and endlessly work towards promotion of robust payment system to attract more user base.

Arun Ingle and Rajendra Singh Pardeshi (2012) In a conceptual study the researchers have explained about internet banking in India and have identified the advantages and disadvantages of internet banking to banks as well as to customers. Advantages for banks are cost-effective, enhancement of customer service, increased revenue, competitive pressure, etc., for customers the advantages include convenience, quick transaction, ubiquity etc. The disadvantages for banks are complexity, technology problem, for customers the disadvantages include delay in online registration process, and lack of trust, continuous changes in bank website hinders navigation. The study suggests that banks should provide education and explain about the advantages of internet banking to customers which will initiate them to adopt internet banking services.

Objectives of the Study

- To study the various types of digital payment systems.
- To know the opportunities and challenges of digital payment systems.
- To offer suggestions to improve & identify the future of digital payment system in India

Research Methodology

The process used to conduct research is referred to as "research methodology. It describes the nature of the study, the method of data collection, and the tools used to analyze the data. This paper is descriptive because it describes the current situation and study features. It aids in the reduction of bias and increases the reliability of data in research. In the paper, secondary data is used. Data was gathered from journals, research papers, periodicals, published reports, various websites, etc.

Role of RBIin Encouraging E-Payments

Money can be transferred from one person to another electronically through various electronic payment systems in India. The initiatives and steps taken by the Reserve Bank of India has created a string technology based system for electronic payments, allowing seamless electronic fund transfer between two parties with very minimal transaction cost.

- The Payment and Settlement Systems Act, 2007 was a major step in this direction. It enables the RBI to "regulate, supervise and lay down policies involving payment and settlement space in India."

- In pursuit of the above-mentioned goal the RBI has granted NBFC's (Non-Banking Financial Companies) the permission to issue co-branded credit cards forming partnerships with commercial banks.

- The KISAN CREDIT CARD Scheme was launched by NABARD in order to meet the credit needs of farmers, so that they can be free of paper money hassles and use only plastic money.

- A domestic card scheme known as RuPay has recently been started by the National Payments Corporation of India (NPCI), promoted by RBI and Indian Banks Association (IBA), inspired by Unionpay in China, which will be promoting the use of card, i.e. "plastic money". Initially functioning as an NPO, Rupay will focus on potential customers from rural and semiurban areas of India. Rupay will have a much wider coverage than Visa, MasterCard or American Express cards which have always been used for card-based settlements.

- The NREGA (National Rural Employment Guarantee Scheme) introduced by the Government will ensure rural employment in turn ensuring that the employees get wages.

However, the Indian banking system suffers from some defects due to certain socio-cultural factors which hampers the spread of the e-payments culture even though there are many effective electronic payment channels and systems in place. Despite the infrastructure being there nearly 63% of all payments are still made in cash. A relatively small percentage of the population pays their bills electronically and most of that population is from urban India-the metropolitans.

Payment Gateways in India

- **Google Pay**

Google Pay applies Near Field Communication (NFC) to broadcast card information facilitating funds move to the retailer. NFC replaces the credit card and debit card chip and PIN or magnetic stripe deal at point-of-sale terminals by empowering the user to upload these in the Google Pay wallet. It is comparable to contactless payments previously used in many countries, with the inclusion of two-factor authentication.

Google Pay is an superior wallet stage and online instalment structure created by Google to manage in-application and tap-to-pay buys on mobile phones, allowing clients to create installments with Android mobiles, tablets or watches.

- **PayPal**

The PayPal stage empowers designers to make applications that can make buys for the benefit of outsider clients, without the clients being diverted to paypal.com to finish the installment exchanges. Such trader started billings for non-repeating/non-membership installments incorporate adaptive payments pre-endorsements and express checkout reference exchanges.

- **PhonePe**

The PhonePe application available in India is accessible in11 Indian languages. With PhonePe, clients can send and getrupees, DTH recharge, information cards, carry out utility installments, buy gold and shop on the internet and offline. In addition, PhonePe permits clients to book Ola rides, pay for Redbus tickets, request nourishment on freshmen, eaf, fit and benefit Goibibo Flight and Hotel benefits through micro-apps on its foundation.

- **Paytm**

Paytm payment gateway is currently supports 12 Indian languages and offer online provision that include mobile top-ups, service bill payments, tour, movies, and events booking, store payments at domestic and international shops, fruits and vegetable stores, restaurants, parking, toll-gate, Hospital, medicines and academic institutions using the Paytm QR code. California based PayPal had filed a case against Paytm in the Indian trademark office for using a logosimilar to its own on 18 November 2016.As ofJanuary2018,Paytm is valued at $10 billion and it is planning to launch its initial public offering (IPO) in 2022.

- **Amazon Pay**

Amazon Pay is an online installments preparing administration that is possessed by Amazon. Propelled in 2007, Amazon Pay utilizes the shopper base of Amazon.com and spotlights on giving clients the alternative to pay with their Amazon accounts on outer trader sites. Amazon Pay gives the choice to buy products and enterprises from sites and versatile applications utilizing the addresses and installment strategies put away in the amazons account.

- **Others**

Web banking programming gives individual and corporate financial administrations offering highlights, seeing record adjusts, acquiring proclamations, checking late exchanges, moving cash among records and making installments. It can be done by using credits and debit cards and they supports different methods of payments. IMPS, NEFT, RTGS are used to transfer funds from one account to another.

Security Features

- **Google Pay**
  - Payment statistics, cryptography for merchants.

- The Google Pay API returns payment ways in a notably signed and encrypted Payment methodology Token payload. They came few ways by both cards that comprise PAN and tokenism cards. It contains machine permanent account number and crypto-grams.
- Typical data load contains a field that specifies the protocol edition that informs the receiver of the consignment about crypto-logic scenarios used and as a result the expected format.
- This afford particulars to establish a public key in order to demand a Google signed plus encrypted indict move toward token, and little print the steps to need affirming and decipher the token. The above numbers applies exclusively to protocol description = ECv2.
- The following steps define what an integrator has to do to consume the Google Pay API ECv2 payment procedure coupon payload.
- Acquire Google origin sign key.
- Confirm that symbol of the center key is genuine through available signing keys.
- Check the in-between sign type of the data portion to ensure data is still alive.
- Ensure the mark of the load is legal by applying in between signing-key.
- Next, decrypt the filling of the payload after carefully verifying the genuineness of the sign. Ensure that communication is still alive. This can be done by comparing the present time with the communication expiration time in the decrypted load.

- **PhonePe**

    There are two key capacities that the term covers.
    - Ensuring that these subtleties are certified and not phony or fake.
    - While physical character is genuinely simple to confirm, checking one's advanced personality isn't as basic.
    - The procedure rotates around confirming two confirmation factors something physical you have, and a bit of secret data you know.
    - On account of ATM exchanges, your bank card is the thing that you have, and your PIN is the thing that you need to make sure to do the exchange.
    - UPI exploits that and joins itself with your portable number for distinguishing proof.
    - At the point when you pursue an UPI application, your telephone sends a push SMS for check purposes. This guarantees that no one can duplicate the OTP from another gadget.
    - Utilizing push SMSs ties your gadget to your portable number and should be revamped each time you change your gadget.

Key UPI Features that Boost Security

The selling purpose of the UPI stage is that your cash never leaves your record your exchange is finished. There is no middle of the road step where an outsider gets access to your cash. To put it plainly, UPI exchanges are immediate financial balance to ledger exchanges. The way PhonePe works, you simply need the payee's bank connected portable number to make an exchange, given that they are a PhonePe client as well. This expels the need to share private subtleties like financial balance number and IFSC number. As a stage made by the NPCI, UPI will have further security combinations later on.

Making UPI Aadhar/UIDAI prepared is accounted for to be in the pipeline for UPI 2.0, and if that occurs, UPI will have reconciliations with Aadhar's biometric database. This will give it an additional degree of biometric based security later on.

- **Paytm**

    Paytm is PCI DSS consistent as far as security is concerned. Preserve CVV of client to ensure their credit and optimistic unique proof subtleties are completely sheltered. Currently every monetary interchange with Paytm is in the course of 128-piece complex SSL protection. User tend to moreover associate continuously perception and gathering activity motor to evacuate suspicious exchanges and ensure the client's money is generally secure.

- **PayPal**

    The SSL/TLS conventions are the reason for secure interchanges on the web. They are additionally under steady assault. Security specialists attempt to remain one stride in front of digital aggressors by examining the SSL/TLS conventions for vulnerabilities. Recommend certain practices to follow for the best practices.

- Discontinue use of the VeriSign G2 Root Certificate Upgrade to SHA-256 SSL certificates
- Use TLS version 1.2 or higher
- Let the protocol negotiate the highest version

- **Amazon Pay**

Transport Security Layer ("TLS") and Secure Sockets Layer ("SSL") are conventions intended to guarantee that information can be safely moved between a web server and a program utilizing cryptographic calculations. TLS/SSL guarantees that the information transmitted originates from the source it professes to be originating from and has not been altered or perused by an outsider during the transmission.

- **TLS/SSL testaments:** TLS/SSL utilizes testaments to make sure about and secure transmitted information. An authentication contains data about the proprietor of the testament, for example, the association, nation, span of legitimacy, site address, and the declaration ID of the individual who guarantees (signs) this data. It contains additionally the open key and a hash to guarantee that the declaration has not been altered.

- **Security:** The primary reason for using a TLS/SSL certificate is to keep data exchanged between a buyer's browser and your server secure. This prevents order and payment details or buyer data, such as the buyer's username and password from being exposed to the internet and intercepted.

- **Buyer Trust:** When you purchase a TLS/SSL certificate, the Certificate Authority will issue a seal to be displayed on your web page. This seal in stills trust in your website when buyers know their data is secure.

Five Trends that Ruled the Digital Payment Solutions in India

Digital payments have come of age during the last few years in India. With access to multiple platforms, modern users are now increasingly opting for digital payments to discover and complete their purchase journey. Today even individual blue-collar workers, such as carpenters or beauticians accept cyber payments.

The numbers also reflect this impressive trajectory with digital payments accounting for 40 billion transactions worth more than a quadrillion rupees in 2021 These are some of the trends that ruled the digital payments industry in —2021, fuelling its growth:

Consumer Experience takes the Lead

For many millennials and Cen Z users, digital payments were preferred over legacy payment systems because of the way it facilitates efficient, seamless and robust transactions. It unties them from cash or card usage, replacing the physical wallet with the phone, Digital platforms also leverage technology for faster payments, which makes for a smoother consumer experience.

Contactless Payments

The pandemic raised the necessity of contactless payments, changing the traditional payment infrastructure that relied on the exchange of cash, credit/debit cards. Digital payment platforms offer the ideal alternative through scan-and-pay technology where the user has to scan a QR (Quick Response) code issued to the merchant by a bank The deployment of QR code at POS also provides us with an alternative to expensive electric transactional devices such as Electronic Data Capture machines, Further facilitating merchant acquisition, eventually leading to large-scale adoption.

Merchant-Led Payment Initiatives

UPI has been one of the major drivers of the digital payment ecosystem. Digital payment platforms further leveraged UPI for a smooth purchase journey where an app could be used to carry out any transaction. Unlike credit cards, payment took place in real-time with instant confirmation and ensured quick payment processing with a streamlined settlement mechanism.

Micro Payments Leading to Inclusive Payments

One of the challenges of establishing a digital economy is the low penetration of the digital ecosystem within the MSME sector. Customer acquisition in this segment has languished because of lack of technological enablement and perceived low profitability with high risks. However, digital payment platforms have broken through this barren facilitating customer acquisition by leveraging low-cost tech like UPI and QR code to bring down transactional costs. This objective of financial inclusion is expected

to get another fillip after the RBI in October pushed for offline digital payments for amounts under Rs 200 These transactions will utilize voice-enabled solutions, cards, or tokens in the absence of the internet.

Leading through Innovation

In the heavily contested digital payment landscape, fintechs have continually brought in innovations to create new products, to further ease payment journeys and facilitate financial inclusion. The industry has witnessed the advent of new players, including Big Tech companies and neobanks, pushing the envelope with innovative products and models, including recon solutions, fraud detection, and alternative pricing models, such as Buy-Now-Pay-Later, subscriptions, and freemiums. At the same time, innovations like UPI and QR-based embedded bill payment services have been backed by a robust banking infrastructure.

The digital payment landscape has been evolving rapidly in the last few years with trends now slowly turning towards consolidation and new partnerships. However, there are still some critical challenges that the industry must overcome. For deeper penetration of the digital economy among rural areas and small towns, we will need to step up our infrastructure support through internet connectivity and banking services. The payoff in the form of financial inclusion will be well worth the investment.

Challenges to India's Digital Payment Revolution

Several structural and technological challenges such as cyber-frauds, transaction costs, communication infrastructure, awareness and adoption need to be overcome to bring about the true realization of the potential of digital payments.

While the growth has been rapid, the industry is still nascent. Several structural and technological challenges such as cyber-frauds, transaction costs, communication infrastructure, awareness and adoption need to be overcome to bring about the true realization of the potential of digital payments. A deep dive into some of these throw up deep large problems that would require collective intervention by the industry.

- **Disputes of Small Merchants:** Merchants, especially smaller ones, are wary of giving away goods and not receiving payments the next day, despite an SMS or paper slip confirming payment approval. This stems from two causes, a) a lack of awareness around how digital payments work and what each electronic confirmation means, and b) cumbersome and time-consuming dispute management processes. Digital payment confirmations are usually received through SMS or printed charge-slips and are in English. Comprehension of written English in India is low in general and with the small merchant community even lower. Moreover, to manage legal implications the content is usually technical in nature which makes it that much more difficult for merchants to understand. Most players, whether banks or fintechs, resort to dispute management through phone calls or digital channels like WhatsApp and Email. Since every payment transaction involves an acquirer (the bank that accepts the transaction), a network (Visa, Master, Rupay) and an issuer (the bank where consumer holds their account), determining the root cause behind any dispute is time consuming and complex. Further, most merchants while agreeing to accept digital payments may not have read the fine print in their agreements wherein if the issuing and acquiring bank do not agree on the dispute, the merchant would need to bear the loss, with no easy way to get access to arbitration. For a small merchant who has limited time to chase disputes, this further reduces their trust in digital payments and moves them towards cash.

- **Substandard Internet Quality**: India faces a major challenge in terms of last-mile internet connectivity. The race to win the telecommunications battle has led to a price war between telcos, the impact being on service quality. There is very little money left in the business for telcos to invest deeply into creating a quality network or service infrastructure. COVID-19 led to a huge surge in Internet demand and that has led to a further strain on the infrastructure. Unlike regular web browsing, payment traffic has specific needs such as low latency, low response time-outs and a need to connect modern TCP/IP based systems with legacy ISO systems. The result is time-outs, packet drops leading to a typical experience of a consumer getting confirmation of payment while the merchant has no confirmation. In the absence of which the merchant cannot handover the goods, while the consumer having been debited has no easy way to get a refund. This inconvenience discourages first-time consumers from adopting digital payments, especially for micro-payments.

- **Cyber Fraud** – India comes only second after the US in hacking attempts, reflecting the interest in the hacking community in India. While till date large scale data breaches have been limited, the overall security posture is nascent. Inadequate investments into security technology and lack of awareness with people dealing with data in banks and fintechs are the primary reasons for this. Historically it has been seen that most data breaches have a human lapse behind them. A higher awareness of what may seem like an insignificant lapse, e.g. a piece of paper on which a password was written being torn and thrown into a dustbin, is needed to limit things going wrong. A tightening of the enforcement infrastructure and quick disposition of cases with strict penalty would also help in creating deterrents. While the banking and fintech industry are working on ways to control this, cyber-criminals and hackers are evolving their techniques too. In such an environment, use of technology with a combination of awareness and stricter laws can help in navigating the landmine of security problems.

Suggestions to Improve Digital Payments System

Some of the suggestions to improve the services and enhance the usage and adoption of digital payment systems are listed below:

- The connectivity of internet should be accessible everywhere with adequate bandwidth and should be available at low cost.

- Government should strengthen the cyber security regulations and enhance the Information and Communication Technology to avoid fraudulent activities and to improve security. Immediate actions should be taken on the hackers and cyber frauds.

- Even in villages and remote areas, the mobile network should be made available.

- Awareness programme related to digital modes and usage of apps should be provided and Government must create trust and build confidence in the minds of people.

- Literacy with regard the digital transactions should be provided. People should be educated about the modern technology and innovations to access their bank accounts using digital modes.

Future of Digital Payments

Technology plays a vital role for mass adoption of digital payments. The right product has to gratify to the assorted needs of the customer. The payment methods have to be simple, fast, efficient, reliable and secure. Previously researches has evidenced that convenience is the major motivator for the customers to embrace digital payment system on the contrary to well-known belief of discounts and cash-back offers. The digital payments mode in India is still budding though it has seen significant activity in the yesteryears. There is an enormous opportunity. "The digital payment offerings of the future need to combine the simplicity and universality of cash with the security and convenience offered by digital payments," the Google-BCG report stated. India is experiencing a significant growth in digital payments. Digital transformation has stipulated an easy path to go for digital payments. This will certainly improve the quality and increase the quantity of digital transactions.

Conclusion

In current digital environment, payments catch the form of money transaction as electronic shape. The E-Payment options have been accepted and proven to be most important payment method worldwide. This article reveals the customer experience in different parameters while using popular payment gateway systems that are currently used in India. The survey is conducted among different category of customers across multiple domains. Top payment methods including Amazon, Phonepe, PayPal, Gpay, Paytm were investigated. The analysis results show that the Google Pay service proves to be more efficient in providing best experience for users.

References

1. Sun J, Ahluwalia P, Koong KS. "The more secure the better? A study of information security readiness" Industrial Management and Data Systems. 2011 Apr 26; 111(4): 570–88. Crossref

2. Aigbe P, Akpojaro J. "Analysis of security issues in electronic payment systems" International Journal of Computer Applications. 2014 Jan 1;108(10):10–4. Crossref

3. Ayo CK, Adewoye JO, Oni AA. "The state of e-banking implementation in Nigeria: A post-consolidation review" Journal of Emerging Trends in Economics and Management Sciences. 2010; 1(1):37–45.

4.   Oyewole OS, Abba M, El-maude JG. "E-banking and bank performance: Evidence from Nigeria", International Journal of Scientific Engineering and Technology (IJSET). 2013; 2(8):766–71.

5.   Oyewole OS, El-Maude JG, Abba M, Onuh ME. "Electronic payment system and economic growth: a review of transition to cashless economy in Nigeria" International Journal of Scientific and Engineering Research. 2013; 2(9):913–8.

6.   Singh A, Singh K, Shahazad, Khan MH, Chandra M. "A review: secure payment system for electronic transaction", International Journal of Advanced Research in Computer Science and Software Engineering. 2012 Mar; 2(3): 236– 43.

7.   Shilpa, Sharma P. "Advance technique for online payment security in e-commerce: Double Verification", International Journal on Computer Science and Engineering. 2013 Jun 1; 5(6):508

8.   Abrazhevich D. "Electronic payment systems: A user entered perspective and interaction design" Dennis Abrazhevich; Eindhoven, Netherland: Technische. 2004; 1–202.

9.   Roy S, Sinha I. "Determinants of customers' acceptance of electronic payment system in Indian banking sector–a study", International Journal of Scientific and Engineering Research. 2014; 5(1):177–87.

10.   Kabir MA, SaidinSZ, Ahmi A. "Adoption of e-payment systems: a review of literature", International Conference on E-Commerce, Kuching, Sarawak. 2015. p. 112–20.

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