



E-Payment System: A General Literature Review

¹Prof. (Dr.) Arti Gaur, ²Ms. Sanju Verma

¹Professor, Business Administration Department, Chaudhary Devi Lal University, Sirsa, India

²Research Scholar, Business Administration Department, Chaudhary Devi Lal University, Sirsa, India

Email - ¹artigaur@cdlu.ac.in, ²vermasanjana1813@gmail.com

Abstract: In today's interconnected world, electronic payment systems have become the backbone of financial transactions. It delves into the introduction of e-payment systems and various modes, ranging from credit and debit cards to mobile wallets, prepaid cards, and innovative systems like the Unified Payments Interface. The study then meticulously examines the benefits of e-payment systems, elucidating their role in fostering convenience, cost-efficiency, financial inclusion, security, and transactional efficiency. However, the research also unearths the drawbacks, where security vulnerabilities, technical glitches, digital disparities, technology dependence, and transaction costs raise legitimate concerns. Looking towards the future, the paper discusses the potential direction of e-payment systems, highlighting the advent of decentralized finance, central bank digital currencies, and the integration of emerging technologies like blockchain and artificial intelligence. Finally, the study concludes that e-payment systems, while not without their challenges, represent an indispensable force in reshaping the financial landscape, offering a pathway to enhanced accessibility, security, and efficiency in the financial ecosystem.

Key Words: Digital payment; Online payment; Mobile payment; Unified payment interface.

1. INTRODUCTION OF E-PAYMENT SYSTEM:

The accelerating growth of e-payments in the economy must not be overlooked. The Internet has woven the globe to improve the country's economic standing. The internet and technology have become deeply embedded in our daily lives (Nikhitha & Shalini, 2023). The Government of India launched the Digital India Program in 2015 to empower Indian citizens. The government's Digital India plan aimed to create a cashless economy. The government's goal with the digital effort was to bring electronic transactions to a level where the economy could be "faceless, paperless, and cashless." The worldwide outbreak has also caused a shift in consumer behavior, which has played a vital role in the growth of e-payment systems (Roy, 2022). The four variables that contribute to the strengthening of the e-payment system are innovation, incentives, customer convenience, and the regulatory framework (Roy & Sinha, 2014). The evolution and popularity of the electronic payment system may also be attributed to the internet's speed and technological advances, which have continuously pushed users toward online payments, reducing the overall use of currency. Because they are quick and convenient, electronic payments conserve a lot of time. How swiftly you can use a click to pay for your favourite clothing, get foodstuffs, or make a reservation via the internet. Even though everything happens in a couple of seconds, there is a complicated process at work (Patel, 2022). Going cashless not only makes life easier, but it also helps validate and standardize transactions. This reduces wrongdoing and the flow of black money, resulting in increased economic growth. The costs of printing and transporting currency notes are lowered (Joshi, 2018). Electronic payments come in a variety of forms and ways. Debit cards, credit cards, mobile wallets, the Unified Payments Interface (UPI) service, and the Unstructured Supplementary Service are just a few examples. UPI has rapidly become the most widespread and fastest-growing payment system in India (Gaur & Verma, 2023). It was created by the National Payments Corporation of India and operates on IMPS technology. The ease with which funds may be handled is the key reason for its popularity. One can transmit money to another person's bank account in as little as 2–3 seconds using only a mobile phone number connected to a bank account; this is a big step forward in the government's 'Digital India' effort. Because there are no intermediaries, UPI offers reduced transaction costs and a quick settlement. UPI has facilitated communication between different banks as well as interoperability across diverse bank payment systems (Gochhwal, 2017). Google has urged the Federal Reserve Bank of the United States to build a UPI-based method of payment in their country due to the positive outcome of UPI technology. Some US companies want to launch an e-payment system based on UPI soon. Many other developed and developing countries, notably the United States, plan to use UPI. India has made great technical progress. Third-party apps such as PhonePe, Google Pay, the BHIM UPI app, and Paytm, among others, are growing the popularity of UPI-based e-payment operations in India. Banks also offer UPI-based transaction services through their own applications.



2. VARIOUS TYPES OF E-PAYMENT SYSTEM:

- **Credit and Debit Cards:** Credit cards are renowned for enabling users to make purchases on credit with an obligation to repay at a later date. They offer the convenience of global acceptance, making them popular for everyday transactions and online shopping. However, they come with the drawback of potentially high interest rates and the risk of accumulating debt. Debit cards, in contrast, allow users to make payments directly from their bank accounts, limiting spending to available funds and eliminating the risk of accruing debt. Nevertheless, their international acceptance can be limited (Pine labs, 2022).
- **Online Banking:** Online banking is a ubiquitous feature of modern finance, providing individuals and businesses with the convenience of managing their accounts, transferring funds, and paying bills from their devices. It offers 24/7 accessibility and the ability to track transactions in real-time (Digital payments - check different modes of digital payment, n.d.). However, concerns about online security and reliance on a stable internet connection may be seen as disadvantages.
- **Real-Time Gross Settlement:** It stands out as a prominent mode of electronic payment, widely adopted in various countries. It provides a platform for immediate, large-value, and time-sensitive transactions between participating banks and financial institutions. This system is meticulously designed to ensure swift and irreversible settlement, thereby enhancing the efficiency and security of high-value financial transfers. It offers numerous advantages, notably the instantaneous transfer of funds, a significant reduction in counterparty risk, and the obsolescence of physical checks or cash in high-value transactions (Pine labs, 2022). By ensuring real-time settlement, RTGS plays a pivotal role in bolstering the overall stability of the financial system and mitigating potential liquidity and credit risks.
- **National Electronic Funds Transfer:** It is a widely used mode of electronic payment in many countries, including India. It is an electronic funds transfer system that enables individuals and businesses to electronically transfer money from one bank account to another, regardless of their geographical location. One of the primary advantages of NEFT is its accessibility to a wide range of users. NEFT operates on a deferred net settlement (DNS) basis, with transactions being batched and settled in hourly slots. This means that transactions initiated within a specific time frame are grouped together and processed collectively, resulting in multiple settlement cycles throughout the day (Digital payments - check different modes of digital payment, n.d.). It is known for its reliability, cost-effectiveness, and widespread acceptance, making it a preferred method for both online and offline transactions.
- **Mobile Payment Systems:** This category includes mobile wallets and QR code payments.
 - a. **Mobile Wallets:** Mobile wallets serve as digital repositories for payment information, allowing users to make contactless payments through their smartphones. They offer the advantages of convenience, speed, and reduced physical contact, making them ideal for in-store and online purchases. Major players like Apple Pay, Google Pay, and Samsung Pay have gained prominence in this field.
 - b. **QR Code Payments:** QR code payments leverage Quick Response (QR) codes to facilitate transactions. Users scan a QR code displayed by the merchant, and the payment is processed. This method is known for its simplicity and cost-effectiveness, as it requires minimal infrastructure (Digital payments - check different modes of digital payment, n.d.). It is particularly popular in regions like China, where apps like Alipay and WeChat Pay dominate the market.
- **Peer-to-Peer (P2P) Payment Systems:** P2P payment platforms enable individuals to transfer funds directly to one another through mobile apps or websites (Fidypay, 2023). Apps like Venmo, PayPal, and Cash App have gained popularity for their ease of use, making splitting bills or repaying friends a seamless process.
- **Electronic Fund Transfer Systems:** These systems allow individuals and businesses to transfer funds electronically, often used for large transactions or recurring payments. Options in this category include direct deposit, Automated Clearing House (ACH) transfers, and wire transfers (Digital payments - check different modes of digital payment, n.d.).
- **Prepaid Card Systems:** Prepaid cards come loaded with a specific amount of money and can be used until the balance is depleted (Pine labs, 2022). They are often used as gift cards or for budgeting purposes, offering the advantage of controlling spending. However, they may come with fees and limited usability.
- **E-commerce Payment Gateways:** E-commerce payment gateways are essential for online merchants, facilitating secure transactions by encrypting and processing payment information. Examples include PayPal, Stripe, and Square.
- **Biometric Authentication in E-Payments:** This emerging trend involves using biometric data like fingerprints or facial recognition for secure and convenient payment authorization (Hanna, 2021). It enhances security and simplifies the payment process for users.

3. BENEFITS OF E-PAYMENT SYSTEM:

- **Convenience:** E-payment systems provide unparalleled convenience, enabling users to conduct transactions at any time and place without the need to physically visit banks or ATMs (Fidy pay, 2023). This 24/7 accessibility simplifies everyday financial tasks, from online shopping to bill payments, enhancing overall convenience in daily life.
- **Cost Efficiency:** E-payments are known for their cost-effectiveness, offering lower transaction expenses compared to traditional methods like checks or cash (Pine labs, 2022). Reduced handling and processing costs benefit both consumers and businesses, enhancing financial efficiency across the board.
- **Financial Inclusion:** E-payment systems play a pivotal role in advancing financial inclusion by extending access to banking and financial services to underserved and remote populations. This fosters economic development and social equity by bridging existing disparities.
- **Enhanced Security:** E-payments incorporate robust security measures, including encryption and multi-factor authentication, which fortify protection against fraudulent activities and theft. These security measures make e-payment transactions safer compared to the traditional practice of carrying physical cash.
- **Efficiency and Speed:** E-payment systems optimize financial processes, reducing the time and effort required for transactions. These systems facilitate swift transaction completion, enabling faster fund transfers and improved liquidity, which benefit both businesses and consumers (Fidy pay, 2023).
- **Enhanced Precision:** E-payment systems reduce the potential for human errors linked to manual record-keeping, which is particularly vital for businesses as it guarantees accurate financial data and accounting.
- **Inclusivity:** E-payment systems are designed to accommodate a diverse range of users, including those with physical disabilities. Their user-friendly interfaces and assistive technologies enhance inclusivity, ensuring that financial services are accessible to all (Pine labs, 2022).
- **Positive Environmental Impact:** E-payment systems play a part in fostering environmental sustainability by diminishing the reliance on paper-based transactions. This reduction in paper usage conserves resources and contributes to a reduction in carbon emissions.
- **Transparency and Responsibility:** E-payments generate electronic records of all transactions, establishing a clear audit trail (Fidy pay, 2023). This transparency and accountability are beneficial for businesses, individuals, and regulatory authorities, facilitating the monitoring and management of financial activities.
- **Convenient Tracking:** E-payment systems produce comprehensive electronic transaction records, simplifying the audit process for both individuals and businesses (Top 10 advantages and disadvantages of online payments, 2023). These detailed audit trails streamline the monitoring and management of financial transactions, ensuring compliance and accountability.

4. DRAWBACKS OF E-PAYMENT SYSTEM:

- **Security Vulnerabilities:** E-payment systems are susceptible to cybersecurity threats, including data breaches and identity theft, which can jeopardize user privacy and financial security.
- **Technical Hiccups:** Instances of system outages, software glitches, and connectivity problems can disrupt e-payment services, leading to transaction failures and inconveniences for users.
- **Digital Disparity:** Not all individuals have equitable access to digital devices or internet connectivity, resulting in the exclusion of certain segments of the population from participation in e-payment systems (Advantages and disadvantages of online payments – javatpoint, n.d.).
- **Overreliance on Technology:** Excessive dependence on e-payment systems can render users vulnerable during system failures or power outages, making them reliant on technology for their financial transactions.
- **Transaction Costs:** Several e-payment platforms impose transaction fees, which, over time, may accumulate and escalate the overall cost of financial transactions for users.
- **Privacy Concerns:** E-payment systems typically demand users to divulge personal and financial information, sparking concerns regarding data privacy and the potential mishandling of this information by service providers.
- **Risk of Fraud and Scams:** E-payment systems are vulnerable to a spectrum of fraudulent activities, including phishing, spoofing, and online scams, all of which can result in financial losses and harm to users (Top 10 advantages and disadvantages of online payments, 2023).
- **Challenges in Adhering to Regulations:** The continually evolving landscape of e-payment regulations and standards may not always keep pace with rapid technological advancements, causing uncertainties and compliance difficulties for businesses and users.

- **Acceptance Limitations:** Not all merchants or businesses readily embrace e-payment methods, curbing the practicality of e-payments for specific transactions and compelling users to revert to conventional payment options (Top 10 advantages and disadvantages of online payments, 2023).
- **Absence of Physical Documentation:** E-payments often lack the tangible paper trail associated with cash or checks, making it arduous for some users to monitor their financial transactions and maintain records, which can be crucial for personal or business purposes (Advantages and disadvantages of online payments – javatpoint, n.d.).

5. POINTS TO CONSIDER WHILE COMPLETING E-PAYMENTS:

- **Never utilize unsecured Wi-Fi connections:** No matter how rushed you are, you should never do business on public computers or Wi-Fi networks because there is a considerable risk of data theft and other cyber threats.
- **Utilize private windows:** Make sure that all your transactions are done in private windows and that you avoid any suspicious apps or websites that are not recommended by the app store (Top 10 advantages and disadvantages of online payments, 2023). Look for reviews and the number of downloads to learn more about such apps.
- **Avoid saving card information:** Most of us want to save our card information on our cell phones or other devices to avoid having to enter it every time. However, this is not recommended because it can be misused in cases of theft. Please remember to delete your card information after each use.
- **Never disclose your passwords:** As cliché as it may sound, following this tip is critical. Don't disclose your passwords to anyone, and change them on a frequent basis to avoid falling victim to hackers or other cyber thieves. To ensure optimal security, choose a strong password and enable the OTP option (Top 10 advantages and disadvantages of online payments, 2023).

6. FUTURE DIRECTIONS:

In the coming years, e-payment systems are poised to witness a significant shift towards greater security, efficiency, and user-centric innovations. This transformation will be driven by the seamless integration of emerging technologies, including blockchain and artificial intelligence, paving the way for enhanced security measures and personalized user experiences. Digital identities and biometric authentication will play a more prominent role, fostering user trust, while the expansion of real-time payment solutions and cross-border interoperability will create a more connected global digital financial ecosystem. Furthermore, evolving regulatory frameworks will continue to adapt to address emerging challenges, striking a balance between fostering innovation and ensuring robust security, thereby propelling e-payment systems toward broader adoption and continued evolution in the financial landscape.

7. CONCLUSION:

In summary, e-payment systems have undeniably played a pivotal role in reshaping the financial landscape. Offering a diverse array of modes, accompanied by substantial benefits and inherent drawbacks, they have seamlessly integrated into the modern economy. The road ahead promises continuous innovation and transformation, with the integration of emerging technologies, evolving regulatory frameworks, and an unrelenting pursuit of secure and efficient financial services further enriching the world of e-payments. This evolution isn't solely technological; it mirrors the adaptability and evolution of financial services to meet the ever-evolving needs of individuals and businesses in our digital era. As users, regulators, and innovators converge, the future of e-payment systems holds the potential to deliver enhanced accessibility, security, and efficiency, driving the financial ecosystem towards a more inclusive and interconnected future.

REFERENCES:

1. *Advantages and disadvantages of online payments - javatpoint.* (n.d.). www.javatpoint.com. <https://www.javatpoint.com/advantages-and-disadvantages-of-online-payments>.
2. *Digital payments - check different modes of digital payment.* (n.d.). BankBazaar. Accessed from <https://www.bankbazaar.com/ifsc/digital-payment.html>.
3. Fidy pay. (2023). *Electronic payment systems: Types & advantages.* FidyPay. <https://www.fidy pay.com/electronic-payment-systems>.
4. Gaur, A., & Verma, S. (2023). User's Adoption of E-Payment System in Haryana. *EPRA International Journal of Research and Development (IJRD)*, 8(2), 217-224.
5. Gochhwal, R. (2017). Unified payment interface – an advancement in payment system. *American Journal of Industrial and Business Management*, 7, 1174-1191.

6. Hanna, K. T. (2021). *What is biometric payment and how does it work*. Security. <https://www.techtarget.com/searchsecurity/definition/biometric-payment>.
7. Joshi, K. (2018). Cashless Transaction Challenges and Remedies. *International Journal of Creative Research Thoughts (IJCRT)*, 167-172.
8. Nikhitha, U., & Shalini, R. (2023). Adoption of Digital Payment System: A Study Conducted in the State of Karnataka. *International Research Journal of Modernization in Engineering Technology and Science*, 5(4).
9. Patel, P. (2022). E-Payment—A Review on Different Methods, Issues and Challenges. *International Journal of Technical Science & Exploration*, 3(5).
10. Pine labs. (2022). *What is online payment? types, modes, methods, meaning*. What is Online Payment? Types, Methods, and Benefits. Accessed from <https://www.pinelabs.com/blog/online-payments-and-its-types-methods-and-meaning>.
11. Rao, S. R., & Naresh, S. (2017). Challenges and Prospects of Cashless Economy in India. *International Journal & Magazine of Engineering, Technology, Management and Research*, 4(10), 304-309.
12. Roy, S. (2022). Blooming Digital Payment System in India and its affirmation to Indian Users. *International Journal of Early Childhood Special Education*, 14(4).
13. *Top 10 advantages and disadvantages of online payments*. (2023). NTT Data Payment Services India. (2023). <https://www.nttdatapay.com/blog/advantages-and-disadvantages-of-online-payments>.