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G. Commerce, Management, Economics & Entrepreneurship Digital Payments Systems

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Abstract

Digital payment systems have transformed the way financial transactions are conducted by enabling fast, secure, and convenient cashless payments. This project focuses on understanding the concept, growth, and impact of digital payment systems in India, particularly with the increasing adoption of technologies such as mobile banking, Unified Payments Interface (UPI), debit and credit cards, and digital wallets.

The study examines how digital payments contribute to financial inclusion, transparency, and economic efficiency while reducing dependency on physical cash. It also highlights the benefits of digital transactions for consumers, businesses, and the government, including improved transaction speed, record maintenance, and ease of access to financial services.

At the same time, the project discusses challenges associated with digital payment adoption, such as cybersecurity risks, digital literacy gaps, internet accessibility, and user awareness. The study concludes by emphasizing the importance of technological advancement, awareness programs, and secure infrastructure to promote safe and widespread use of digital payment systems in India. This project provides an overview of the evolving digital payment ecosystem and its significant role in supporting a modern, cashless economy.

Keywords- UPI, E-Wallet, Cashless Economy, Payment Gateway, QR Code Payment

Defining digital payments

A digital payment is otherwise called an electronic payment. This is mainly an exchange of values from one payment plan to another through a digital device or channel.

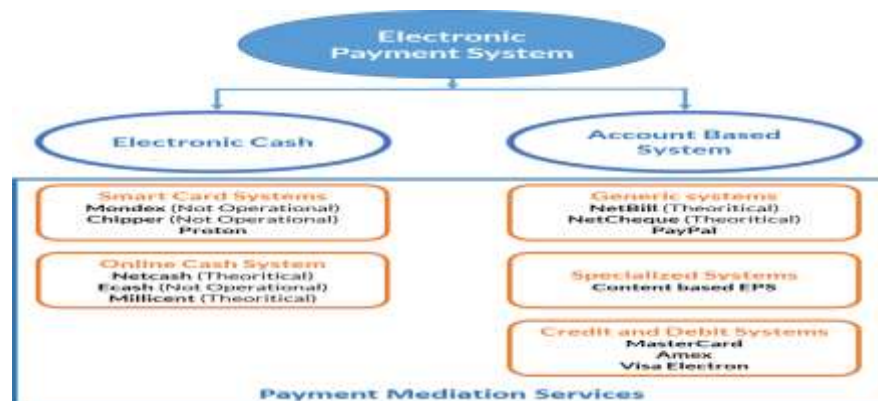


Diagram -1 Electronic Payment System

What are the benefits of digital payments?

Digital Payment Benefits

Digital payments provide a multitude of benefits for individuals, businesses, governments and development organisations globally. The main benefits of digital payments can be summarised in the following four ways:

Women's Economic Engagement

Empowering Women to Control Their Finances: In addition to the empowerment aspect, Digital Payments also allows women to access a broader range of opportunities in the economy. The Reaching Financial Equality for Women initiative (10 actions for every \$1 spent rebuilding post COVID-19) aims to secure greater financial access for women through the promotion of Women's Financial Inclusion.

Economic Growth:

Digital Payments make it possible to unlock economic opportunities for those who have been excluded from financial services and, as a result, to enable resources to flow through the economy more efficiently. An example of this is in Bangladesh, where the adoption of digital payments could add 1.7% to the country's total annual GDP. Similarly, evidence from Kenya has shown that the widespread utilisation of digital payments has reduced poverty and advanced the 2030 Agenda Sustainable Development Goals (SDGs).

Transparency and Security:

Digital Payments are able to provide an increased level of traceability and accountability for payments and therefore reduce the risks of fraud and theft for individuals and companies. Research conducted within the Ghana Cocoa Sector identified the security and personal safety risks that were faced by purchasing clerks along the value chain (in the form of theft, assailants) that were caused by the reliance upon cash. Since Transparency is one of the main benefits of Digital Payments, it is extremely important that Digital Payment Service Providers are completely open and honest about their pricing and other aspects of their business, as defined in the UN Principles for Responsible Digital Payments.

Digital innovations will continue to improve and grow the payments sector.

Currently, the digital innovations on the way payments are conducted and all other sectors of financial services are rapidly evolving. The growth of Nimmons' new payment technologies has gotten faster over time. One of the best summaries of the changes made in the payment industry due to digital technologies is the "Payments and FINTECH," created by both The Committee on Payments and Market Infrastructures and the World Bank Group.

Innovation in Payments is Driven by Several Key Factors

Using AI and ML to improve payment security- through detecting frauds and providing customized financial solutions;

Instant Payments (or RTP)

provide immediate payment confirmation, thus improving cash flow for businesses while providing convenience to consumers.

Biometric identification

(fingerprint, facial recognition, behavioral) will provide enhanced security by providing a secure and streamlined transaction environment.

Embedded Payment Solutions

within Non-Financial Apps are enabling seamless user experiences by integrating payment capabilities into the user interface of the app.

Open Banking and Direct Banking Transfers

allow users to send money directly from their bank account to vendor accounts and eliminate third party fees, improving the speed and security of transmitting payments.

Usages of Digital Wallets and Contactless Payment Technologies

like QR Code and NFC will facilitate fast and secure payments at retail locations and for online purchases.

It is anticipated that by 2025, over half the financial institutions worldwide will utilize Cloud-capable Platforms as a Service (or PaaS) for increased agility and lower operating expenses.

Voice Identified Payments will emerge as a new, convenient method of payment.

There is also a significant movement toward allowing more individuals to become part of the formal financial ecosystem; Digital, and Biometrics are being used to bridge the gap for unbanked individuals to access bank accounts and participate in the financial system.

Digital payment research methodology

Core Components of Digital Payment Methodology

Research Design:

Mainly descriptive research (to develop user characteristics) and analytical research (to analyze the data and trends). Sometimes, exploratory research is also conducted to understand the growth of digital platforms.

Data Collection Methods:

Primary Data: This type of data is usually collected through structured questionnaires, which sometimes include information about user experience with certain applications, like Google Pay, Paytm, etc.

Secondary Data: The secondary data will be collected from the Reserve Bank of India bulletins and good financial websites.

Sampling Technique: Most of the time it employs convenience sampling (e.g., asking random users who are available) or simple random sampling of, usually, 100-200

Data Analysis Tools:

Percentage Analysis: This method is usually employed to determine the popularity of payment modes.

Statistical Tests: Chi-square test or ANOVA is used to find significant differences in adoption rates across dimensions like age, income level, or education level.

Qualitative Tools: Conducting case studies or interviews with industry experts.

Types of Electronic Payment System

1. The Unified Payments Interface (UPI) in India has enabled users to connect multiple bank accounts through one app. Thus, UPI makes it possible to transfer money instantly and easily between people or businesses.
2. Mobile wallets such as Paytm, PhonePe and Google Pay are becoming increasingly popular for online transactions, as these wallets let users load funds onto their virtual wallets and use those funds to pay for services such as mobile recharges, online shopping and utility bills.
3. Debit and credit cards can be used as payment options across all major banks in India. Most debit and credit card transactions occur at point-of-sale terminals, and these cards can also be used at ATMs as well as for making online purchases.

4. IMPS connects users immediately, securely, and reliably around the clock, making it a convenient way to move money quickly. IMPS allows bank customers to send or receive money instantly from their accounts using a phone, computer, or ATM and has been used primarily for small dollar payments such as utility bill payments between individuals and small merchants.
5. The NEFT service allows people to electronically transfer funds from their bank account to another bank account within India. The amount transferred is not available for use until all transactions are settled in a single cycle. The NEFT service is extremely popular among both consumers and businesses alike who utilize this service to perform their monetary transactions electronically.
6. Real-Time Gross Settlement services allow for real-time settlement of high-value transactions via electronic means. Primarily used for large interbank transfers, RTGS services are becoming increasingly popular as more banks implement this type of electronic payment option.
7. Prepaid Instruments are prepaid cards & gift cards that allow users easy access to make electronic payments using the amount that they have preloaded onto the prepaid card.

Regulatory Bodies Governing Electronic Payment System in India

These bodies are charged with the regulation and oversight of the Electronic Payment Systems in India. The Reserve Bank of India (RBI) has been conferred the powers to supervise and regulate payment systems in India under the Payment and Settlement Systems Act, 2007. The RBI is charged with the regulation of the overall payments and settlement systems in India. In addition, electronic payments are governed by the Information Technology Act 2000, which provides a framework for the regulation of electronic transactions and establishes rules for Electronic Governance.

NPCI provides the guidelines for UPI. The Securities & Exchange Board of India (SEBI) regulates the capital market and securities transactions and also regulates E-payments in the context of securities transactions.

The Ministry of Finance has various agencies that provide guidance and direction for the regulation of the Finance Sectors. The Ministry of Finance has various regulatory authorities that oversee the Banking and Financial Services Sectors.

The Department of Telecommunications (DOT) regulates the Telecommunications Sector. Its regulations also apply to the provision of electronic payments through mobile devices, mobile networks, and telecommunication service providers, which are also subject to DOT's regulations.

The Insurance Regulatory and Development Authority of India (IRDAI) is the regulator of the Insurance Sector in India. In relation to electronic payments, it may also oversee the conduct of insurance related transactions through digital payment systems.

Advantages of Electronic Payment System

24/7 Availability: Electronic Payments can be completed at any given time. Therefore, they give users 24/7 access to their financial accounts.

Global Availability: Electronic Payments allow users to process payments and transfer money from anywhere in the world.

Fast Transaction Processing: Electronic Payments are generally processed immediately, which allows for almost instantaneous transfer of funds from one account to another.

Quicker Electronic Transaction Settlements: Electronic Transactions will often settle quicker than traditional electronic transactions.

Record Management and Tracking: Customers and businesses can easily keep track of electronic payment transactions using Electronic Payment Systems.

Encryption & Authentication of Electronic Payments: All transactions conducted using an Electronic Payment System are secured with high-level encryption and a set of strict Authentication Methods to protect vital and confidential information.

Recommendations

1. Please remove transaction fees from consumers making digital payments to government agencies.
2. No convenience fee for consumers making digital payments to state-run entities and federal departments.
3. Merchant Discount Rate (MDR): A reduction of 15 basis points (100 bps = 1%) will be mandated for interchange fees that merchants incur when accepting credit/debit cards as payment.
4. A three-year removal of the 18% Duty on Point of Sale (POS) Systems.
5. Reduce GST (Goods and Services Tax) for Digital Transactions to incentivize consumers adopting and supporting digital payment methods.
6. Create a monitoring system for Digital Payment Systems.
7. Create a Digital Financial Inclusion Index to provide a measure for assessing progress within regions that can track the progress of consumers using digital financing and the steps taken to eliminate digital finance disparities.
8. Provide Aggregated Monthly Information of blocks and postal codes to all Payment Stakeholders.
9. Reduce overall consumer expenses through the KYC (Know Your Customer) process and Digital Payment Transaction service charges.
10. Protect consumers from fraud and risk by establishing a machine-driven online dispute resolution system for Payment Systems.
11. Create an Acceptance Development Fund to promote and further develop Merchant Acquiring.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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