Case Study

Digital Payment Systems: A Comparative Study of Global Trends and Nepal's Evolution

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Prepared by

Asmita Ojha

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Siddhanath Science Campus

Table of Contents

1. Introduction

Payment & settlement systems are mechanisms established to facilitate the clearing and settlement of monetary and other financial transactions. Secure, affordable & accessible payment systems and services promote development, support financial stability, and help expand financial inclusion [1]. Over the last two decades, the World Bank Group (WBG) has contributed to the global payment systems knowledge agenda and has supported payment systems reforms in over 120 countries [1]. A Global payment system is the network of tools, rules, and organizations that enable people and businesses to send and receive money internationally. This includes both traditional and digital payment systems used for domestic and cross-border transactions. Digital payment systems are a subset of global payment systems. Digital payment systems refer specifically to the methods and technologies used to facilitate electronic transactions, including online banking, mobile payments, digital wallets, and electronic fund transfers. Digital technologies have facilitated the expansion of cross-border transactions, increased financial inclusion, and accelerated the adoption of electronic payments worldwide.

2. Objective

- To understand the digital payment systems and its growth
- To assess the position of digital payment systems in the global payment ecosystem.
- To know the status of digital payment systems in Nepal
- To conduct a SWOT analysis of the digital payment systems

3. Features of Digital Payment Systems

Digital Payment Systems is the one that made possible for us to make payments for goods and services online thorough mobile app or website or cards. Today we can transfer money from one place to another just in minutes using banking apps. The e-commerce platform is based on this system. Consumers can shop online and merchants can accept payments electronically. Within just few clicks we can pay the electricity, telephone, internet bills saving our time to physically go and do cash payments. The payments for subscription services such as streaming platforms like Netflix are completed thorough digital payments. We can now travel cash less, we had our money in credit card or mobile phones making secure and convenient. Today digital payment systems are in every sector for example retailers, hospitality, e commerce, telecommunication, healthcare, transportation, government services, and education and so on.

4. Position of digital payment system in the world

Digital (or electronic) payments are transfers of value that are executed and/or received using digital (or electronic) devices and channels to transmit the instructions. They include payments initiated by mobile phone or computer. Card payments are considered digital payments.

More broadly, the application of technology to finance is helping the world to become more prosperous and inclusive. Digital technologies have boosted growth, expanded opportunities, and improved service delivery, and digital finance has spurred financial innovation, raised economic efficiency, and is promoting financial inclusion (World Bank Group 2016). Yet the capacity to seize these formidable opportunities remains unequally distributed both within and across countries As great progress is being observed in most countries around the world, many people are still left out because they do not have access to digital financial technologies, starting from the recognition that the Internet remains unavailable, inaccessible, or unaffordable to a majority of the world's population (figure 1) [3].

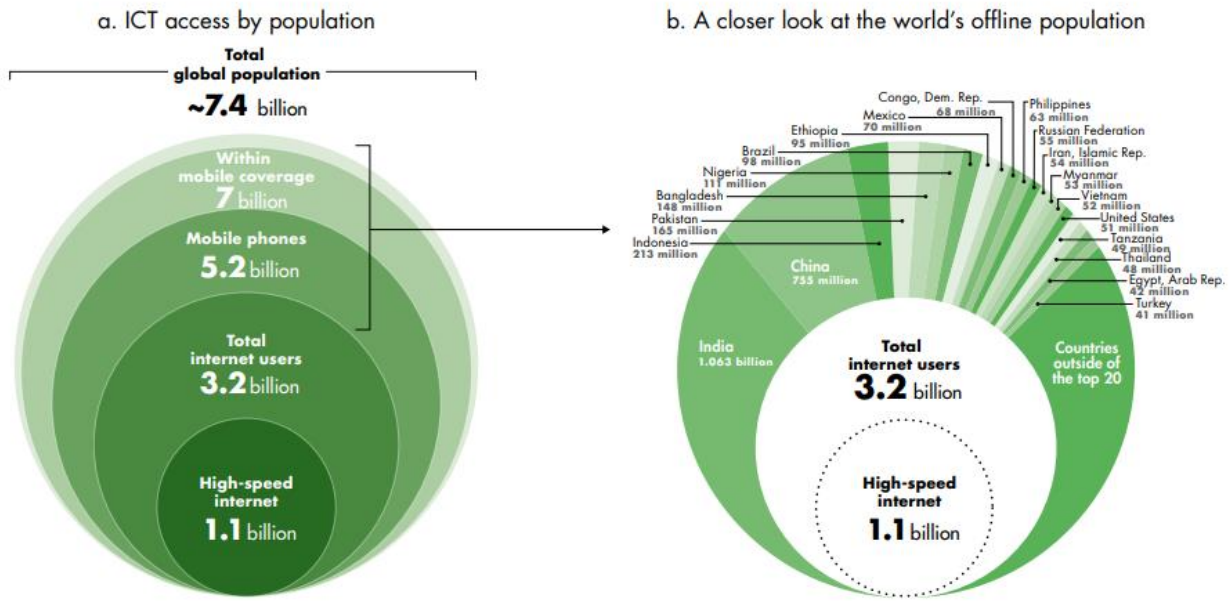

Figure 1: Source: World Bank Report (2016)

The traditional consumer behavior of cash payments shifted to digital payments during the 2020 Covid-19 phase. Payment methods such as plastic money, UPI, m-payments, and wallets have steadily been adopted in the past few years. Offering digital payments to consumers has become necessary for all businesses, from street vendors to online brands.

4.1 General Digital Payments Statistics 2023

- In 2023, the total transaction value in the digital payments segment is estimated to reach $9.46 trillion.

- The digital payments market is expected to grow further to $14.78 trillion by 2027 (CAGR (Compound Annual Growth Rate) of 11.8% between 2023 and 2027).
- Digital commerce is the largest segment in the digital payments market, with a $6.03 trillion estimated value of 2023.
- Two-third of the adults worldwide use digital payments to send or receive money [4].

4.2 Digital Payments worldwide

- Total transaction value in the Digital Payments market is projected to reach US$11.55 trillion in 2024.
- Total transaction value is expected to show an annual growth rate (CAGR 2024-2028) of 9.52% resulting in a projected total amount of US$16.62 trillion by 2028.
- The market's largest market is Digital Commerce with a projected total transaction value of US$7.63 trillion in 2024.
- From a global comparison perspective, it is shown that the highest cumulated transaction value is reached in China (US$3,744.00 billion in 2024) [5].

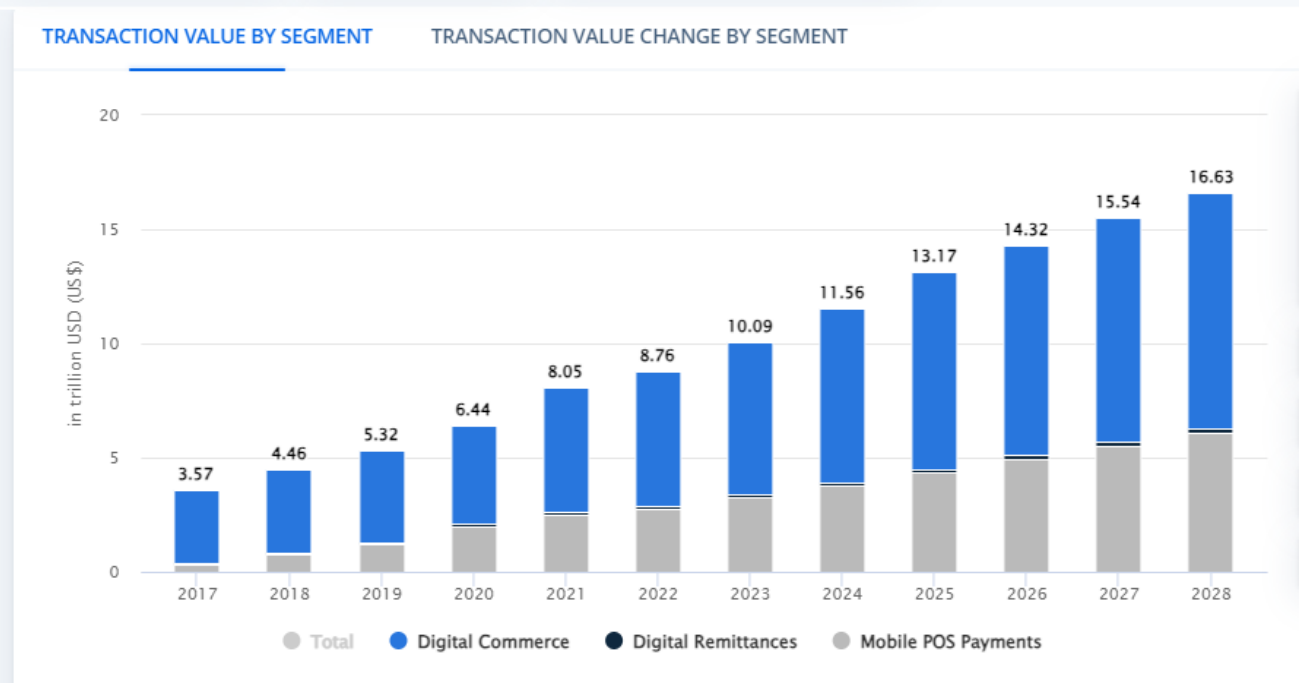

Figure 2: Transaction value by segment

4.2 Leading Countries in Digital Payments

This table shows the top five countries in digital transactions for the year 2022, according to data from MyGovIndia [6].

S.N.	Country	Digital Transaction (Millions)
1	India	89.5
2	Brazil	29.2
3	China	17.6
4	Thailand	16.5
5	South Korea	8.0

Table 1: Leading Countries in Digital Payments

5. Digital Payment Methods

Digital payment methods are ways to pay for things using technology instead of cash. There are countless ways in which online payments can be processed; their popularity depends on individual zones around the globe.

- Credit and Debit Cards: Cards issued by financial institutions that allow users to make purchases or withdraw cash against a line of credit (credit cards) or directly from their bank account (debit cards).
  Examples: Visa, Mastercard, American Express, Discover, Maestro.

- Mobile Wallets: Applications installed on smartphones that store payment card information securely and allow users to make purchases in-store, online, or transfer money.
  Examples: Apple Pay, Google Pay, Samsung Pay, PayPal, Venmo.

- Online Banking: Banking services accessed via the internet, allowing users to perform various financial transactions such as bill payments, fund transfers, and account management.
  Examples: Bank websites, mobile banking apps provided by financial institutions.

- Unified Payments Interface (UPI): A real-time payment system in India that enables users to transfer funds between bank accounts using their mobile phones.
  Examples: BHIM (Bharat Interface for Money), Google Pay (India), PhonePe.

- QR Code Payments : Payment method where a user scans a Quick Response (QR) code displayed by the merchant using a mobile device to initiate a transaction.
  Examples: Alipay, WeChat Pay, Paytm, Bharat QR [7].

6. Digital payment system in Nepal

6.1 Introduction

It has been more than a decade since digital payments were first introduced in Nepal, with Kumari Bank being the pioneer in 2002. At present, there are more than five digital payment platforms established that have been operating digital payment services. Similarly, the majority of banks have e-banking services as well. We can also see the growing number of applications relying on digital payments for the exchange of goods and services. Nepal's journey from a traditional cash-based economy to a burgeoning digital payment ecosystem is a remarkable transformation that holds significant implications for the nation's economic development; with Nepal Rastra Bank (NRB) reporting significant growth in digital transactions. Between Mid July 2021-Mid August 2021, the NRB recorded approximately 1.3 million QR-based payments, totaling NPR 5.1 billion. Fast forward to 2023, and this figure has surged to 11.2 million transactions, amounting to approximately NPR 30 billion, marking a sixfold increase in just two years. This exponential growth underscores the remarkable journey of Nepal's digital payment system, driven by the concerted efforts of various stakeholders [8].

6.2 Historical Perspective

The roots of Nepal's digital payment revolution can be traced back to a time when the country operated with a dual currency system, with Indian currency (INR) coexisting alongside the Nepali rupee. The establishment of the NRB in 1956 marked a pivotal moment as it aimed to eliminate the dual currency system and instill confidence in the Nepali rupee. This laid the foundation for the modern payment system that would gradually evolve in the coming decades.

The advent of information technology, particularly the discovery of personal computers and the internet in the 1980s and 90s, along with a more liberalized economic regime adopted in the 1990s, created an environment conducive to digitalization. During this period, Nepal's banking industry embraced innovation by introducing card-based payment systems, internet banking, and SMS banking, facilitating the transition from a cash-dependent economy to a cashless one.

However, this transition was not without its early challenges, including limited digital literacy, infrastructure constraints, and regulatory complexities. Despite these hurdles, the adoption of digital financial services began to gain momentum [8].

6.3 Modernizing efforts

With the promulgation of the NRB (Nepal Rastriya Bank) Act 2002, developing a secure, healthy, and efficient payment system has remained one of the primary objectives of the NRB. This legal mandate has enshrined the modern payment system by establishing and developing various legal and institutional arrangements.

The NRB, with the formulation of its first-ever strategic plan (2006-2010), emphasized infrastructure development for automated clearing systems. Within two years of implementing a strategic plan, the Nepal Clearing House Limited (NCHL) was established in 2008 to carry out multiple payments in addition to clearing and settlement-related operations.

The Nepal Payment System Development Strategy (NPSDS), formulated by the NRB with assistance from development partners in 2014, paved the way for the integrated and strategic development of the national payment system. A dedicated Payment System Department (PSD) was established in 2015 under the NRB organizational structure. The PSD deals with formulating policies, issuing licenses to Payment System Operators (PSO) and Payment System Providers (PSP), regulating, and inspecting PSOs and PSPs, and facilitating private sectors to promote digital payments [9].

6.4 Current Situation and Positive aspect of Digital Payment System

Nepal's digital payment system is getting better and better. Lots more people are using mobile phones and the internet for their money stuff. There are several digital payment providers in Nepal like Fone Pay, eSewa, Khalti, Prabhu Pay, and IME Pay, SmartQR, which enabled a wide range of services like mobile banking, digital wallet, and UPI-based transactions. Also, Banks and Financial Institution have their own digital payment platform [10]. They are doing more transactions on their phones, and more people have bank accounts now. Mobile money transactions, in terms of value, have witnessed substantial growth, surging from a modest 1.47 percent of GDP in 2019 to a substantial 10.97 percent in 2021. This notable increase signifies a growing acceptance and reliance on mobile-based financial transactions among Nepali citizens. The percentage of people with at least one bank account went up from 60.9% to 67.3% between 2019 and 2021. as per the Financial Access Report of 2021. So, more Nepali citizens are able to save money and use banking services, which is promising for the country's financial system It's easier for everyone, especially in remote areas, to access financial services. Plus, there are more options for making digital payments, like using wallets or scanning QR codes. Overall, it's making life easier and more convenient for Nepali people.

Digital systems are helping Nepal's economy grow. These systems make it easier to manage money by putting everything online. Even in remote places, people can now use banks and money services. This is good for things like healthcare and school. It also helps women and

people with disabilities. Going digital means, we can do things faster and cheaper. It brings in more money and makes things fairer. Overall, digital payments are making Nepal's economy better for everyone.

7. SWOT ANALYSIS

“SWOT analysis is an effective strategic tool that can be used efficiently and resourcefully to assess the strengths, weaknesses, opportunities, and threats of businesses” . It is used to evaluate internal potentials and constraints, eventual external opportunities, and probable risks [2]. The SWOT analysis of digital payment systems is as follows:

7.1 Strengths

The strengths of digital payments systems are listed below:

- Convenience: Digital payments allow users to make transactions anytime, anywhere, without the need for physical cash.
- Speed: Transactions are processed swiftly, reducing waiting times.
- Security: Many digital payment methods employ encryption and authentication protocols to safeguard user data. Biometric authentication (such as fingerprint or face recognition) adds an extra layer of security.
- Cost-Effectiveness: Digital transactions often have lower fees compared to traditional banking methods. Users can avoid ATM charges and currency conversion fees.
- Financial Inclusion: Digital payments bridge the gap for individuals who lack access to traditional banking services. Mobile wallets and payment apps enable financial participation for the unbanked and underbanked populations.
- Record Keeping: Digital transactions generate electronic records, making it easier to track expenses, manage budgets, and reconcile accounts.
- Contactless Payments: NFC-enabled cards and mobile wallets allow users to make payments by simply tapping their device, reducing physical contact during transactions.
- Rewards and Cashback: Many digital payment platforms offer rewards, discounts, and cashback incentives for using their services. Users can benefit from loyalty programs and promotional offers.
- Global Accessibility: Digital payments transcend geographical boundaries. Users can send money internationally without the hassle of physical currency exchange.
- Environmental Impact: By reducing the need for paper currency and physical receipts, digital payments contribute to environmental sustainability.

7.2 Weaknesses

Every system, process has strengths and weaknesses so for digital payment systems. Here are some weaknesses that digital payment systems possess:

- Dependency on Technology: Digital payment systems rely heavily on technology infrastructure, making them susceptible to disruptions caused by system failures, power outages, or cyberattacks, leading to service downtime and transaction delays.
- Digital Divide: Socioeconomic disparities and disparities in digital literacy contribute to the digital divide, limiting access to digital payment systems for marginalized communities and exacerbating financial exclusion.
- Privacy Concerns: Digital payment systems may collect and store users' personal and transactional data, raising concerns about privacy and data security, particularly in cases where data is shared with third parties or used for targeted advertising purposes.
- Complexity: Some users may find digital payment systems complex or confusing to use, particularly older adults or individuals with limited technological proficiency, leading to resistance or reluctance to adopt digital payment methods.
- Risk of Overreliance: If we rely too much on digital payment systems and something goes wrong with them—like a cyberattack or technical problem—it could cause big problems because we don't have other ways to pay. It's like depending only on one tool; if it breaks, we're stuck. To avoid this, we need backup plans and other ways to pay, like using cash.
- Regulatory Uncertainty: Sometimes, the rules and laws about digital payments are unclear or keep changing. This can create confusion and make it hard for companies and people to understand what's allowed and what's not. It's like playing a game without knowing all the rules—it can lead to unfairness and make it difficult for new players to join.

7.3 Opportunities

With the evolution of technology in finance it has created many opportunities and some of they are:

- E-commerce Growth: Digital payment systems fuel the growth of e-commerce by providing secure and convenient payment options for online purchases, allowing businesses to reach a global audience and capitalize on the expanding digital marketplace.
- Mobile Payment Adoption: With the widespread use of smartphones, digital payment systems enable the adoption of mobile payment solutions, facilitating seamless transactions through mobile apps and increasing customer engagement and loyalty.
- Small Business Empowerment: Digital payment systems empower small businesses by offering affordable and accessible payment processing solutions, enabling them to compete with larger enterprises and expand their customer base both locally and globally.
- Financial Innovation: Digital payment systems drive innovation in financial services by fostering the development of new technologies such as blockchain, cryptocurrencies, and decentralized finance (DeFi), creating opportunities for new business models and financial products.

- Cashless Society Transition: Digital payment systems facilitate the transition to a cashless society by promoting electronic transactions over physical currency, reducing the costs and risks associated with cash handling and improving overall efficiency in the economy.
- Government Efficiency: Digital payment systems enhance government efficiency by enabling electronic disbursement of benefits, tax collection, and public service payments, reducing administrative costs and improving transparency and accountability in government transactions.
- Cross-Border Remittances: Digital payment systems streamline cross-border remittances by offering low-cost and efficient transfer options, enabling migrant workers to send money to their families abroad more securely and affordably.

7.4 Threats

There are some challenges or say threats associated with digital payment systems and they are:

- Cybersecurity Attacks: Digital payment systems can be targeted by hackers using techniques like phishing, malware, and ransomware to steal money or sensitive information.
- Fraudulent Activities: Criminals may attempt to exploit weaknesses in digital payment systems to commit fraud, such as using stolen credit card details or hacking into accounts.
- Data Breaches: Breaches of security can result in the unauthorized access or theft of users' personal and financial information, which can be used for identity theft or financial fraud.
- Insider Threats: Employees or trusted individuals with access to digital payment systems may misuse their privileges to carry out fraudulent activities.
- Regulatory Compliance Risks: Failure to comply with regulations and standards can lead to legal consequences, financial penalties, or damage to the reputation of digital payment systems.
- Technological Vulnerabilities: Weaknesses in software or security measures can be exploited by attackers to compromise the integrity, availability, or confidentiality of digital payment systems.
- Social Engineering Attacks: Attackers may use tactics like phishing or pretexting to manipulate individuals into revealing sensitive information or performing unauthorized actions.
- Third-Party Risks: Dependencies on third-party service providers can introduce risks such as service disruptions, data breaches, or compliance failures.

8. FINDINGS AND SUGGESTIONS

8.1 Findings:

1) Global Digital Payment Trends: Digital payments are growing rapidly worldwide, with transactions expected to reach $16.62 trillion by 2028. Online commerce is booming, showing a shift towards digital transactions globally.
2) Nepal's Digital Payment Progress: Nepal has seen impressive growth in digital transactions, thanks to initiatives by Nepal Rastra Bank and the rise of digital payment platforms.
3) SWOT Analysis: Digital payments offer convenience and security but face challenges like cybersecurity threats and regulatory uncertainties.
4) Opportunities for Growth: E-commerce expansion, mobile payment adoption, and support for small businesses present avenues for further growth in digital payments.

8.2 Suggestions:

1) Boost Cybersecurity: Invest in strong security measures to protect against cyber threats and ensure user trust.
2) Promote Financial Literacy: Educate users, especially marginalized communities, on digital transactions to improve accessibility.
3) Clarify Regulations: Review and update regulations regularly to keep pace with technology and foster trust among users.
4) Enhance User Experience: Simplify interfaces and authentication processes to improve usability.
5) Promote Cashless Initiatives: Encourage cashless transactions through awareness campaigns and incentives.

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