

# From Cash to Code: The Impact of UPI on India's Economic Digitalisation

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## Abstract

*Among the government's many long-term and fundamental objectives, achieving financial inclusion in rural areas is considered one of the most important. In a vast country like India, especially in rural, remote, and underdeveloped areas and states where the banking system is still not accepted by citizens as an essential service, modern digital systems like UPI have brought about a fundamental transformation. This has initiated the rural sector's journey towards modernity. The development of a payment system accessible to everyone through mobile phones has ushered in modern financial digital literacy among villagers, women, illiterate citizens, self-help groups, and small vendors. This study examines the journey of the UPI system, from its conceptualisation to its inclusive acceptance. The secret to its success lies in the ease with which every segment of society, including those below the poverty line, can use and connect with this system. The reduction in reliance on cash transactions has helped curb many malpractices. This research paper also considers several challenges related to UPI, such as lack of digital literacy, cyber threats, inadequate internet facilities in remote hilly areas, and data theft. Nevertheless, this system has played a significant role in building trust among the rural population. With the help of conscious digital literacy, supportive government financial policy frameworks, easy accessibility of these facilities in every village, and robust technological availability, digital technologies like UPI have taken a significant and powerful step towards achieving the goal of inclusiveness in rural areas.*

**Keywords:** Financial Inclusion, UPI, Digital Payment, Cash Transaction, Rural Area, Unorganised Sectors

## Introduction

The foremost and most important objective of any modern nation in the world is to provide economic opportunities to the grassroots segments of society and lift them out of the clutches of poverty. The true development of a nation is reflected in the economic inclusion of its weaker sections, enabling them to lead a normal daily life. Economic inclusion means providing affordable and accessible financial services to every segment of society. A crucial link in this economic inclusion is the UPI service. In a country like India, which has been on the threshold of development for decades, small vendors, vegetable sellers, villagers, illiterate citizens, and workers in the unorganised sector have been deprived of simple services like online payments for a long time. They have felt that cash transactions are safer than online financial systems. This has limited their development, and their financial security has often been unknowingly jeopardised.

The Indian economy, which is on its way to becoming the fourth-largest economy in the world, has established a leading position not only

in India but also globally with the UPI system. Because of the facility of direct bank transfers without any intermediary, it has become possible to conduct financial transactions more securely and transparently using only a QR code, without any limitations of time, place, or amount. As a result, trust and satisfaction regarding this system are visibly increasing. Thanks to government initiatives like the Pradhan Mantri Jan Dhan Yojana and Digital India, this facility is now available in rural areas and even to small business owners in cities. This can certainly be called a successful step towards digital transformation.

### Hypothesis

1. The use of UPI has increased the participation of small vendors and self-employed individuals in rural areas in the formal financial system.
2. UPI-based digital transactions have not resulted in any significant change in transaction costs, time savings, or the transparency and security of financial transactions.

### Objectives

1. To understand the concept, structure, and working methodology of UPI.
2. To review the journey and development of UPI.
3. To highlight the impact of UPI on the unorganised and organised sectors, banks, and the economy.
4. To study the role of UPI in the digital development of the Indian economy.
5. To explain the future importance of UPI and clarify its acceptance and contribution at the international level.
6. To shed light on the future technological advancements of UPI.

### Methodology

Descriptive and analytical methods have been used for this research. This study provides context on the concept, structure, development stages, features, advantages, disadvantages, limitations, and global credibility of the UPI system. This research relies on secondary data sources. For this purpose, reports from NPCI and the government, research papers, newspapers, and official government websites have been consulted. The collected information has been compared with global digital systems, and a comparative analysis has also been presented.

### Dawn of a New Era—UPI: From Scan to Send in Seconds

UPI was not the work of a single founder but the result of a collective effort. It was created by the **National Payments Corporation of India (NPCI)** with regulatory guidance from the Reserve Bank of India and support from the **Government of India** to promote inclusive, cashless payments. **Nandan Nilekani** played a significant role in guiding the vision and driving large-scale adoption, alongside NPCI teams and the banking network.

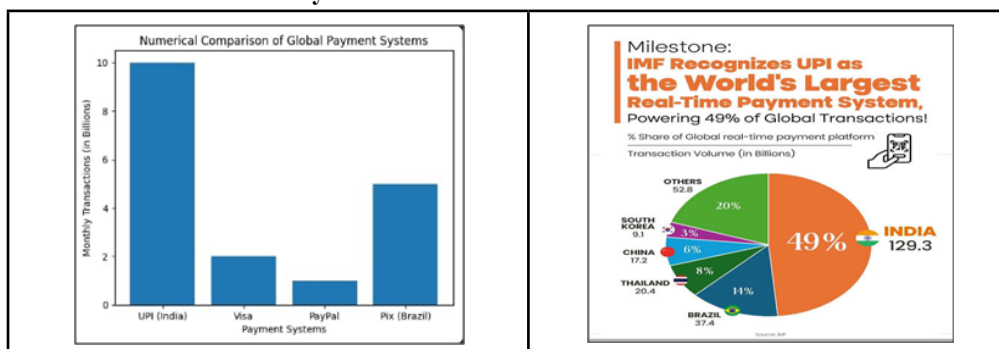
Nandan Nilekani is a prominent Indian technology expert and public servant. He co-founded Infosys and later focused on national digital initiatives. As chairman of UIDAI, he led the implementation of Aadhaar, India's digital identity programme. Through his advocacy for open digital systems like UPI, he has contributed greatly to expanding financial access and strengthening India's digital infrastructure.

### UPI as a Catalyst for Cashless Transactions in India

1. The UPI concept was developed by the National Payments Corporation of India (NPCI) with the help of the Reserve Bank of India's regulatory policies. NPCI's objective was to create an efficient digital platform by interconnecting users of multiple banks on a single platform. The virtual payment address used in UPI omits all of the user's bank details. This has made it easier for individuals to conduct money transactions and business among themselves.

2. Traditional payment transactions were subject to limitations of location and time. However, the revolution in digital payments brought about by UPI in April 2016 made secure and 24/7 fund transfers easily possible. The opening of this innovative avenue led to many positive changes in India's infrastructure.
3. Despite being technologically advanced, initial adoption was limited due to digital illiteracy, concerns about cybersecurity, and low smartphone penetration. This prevented the development of deep trust in UPI among citizens and merchants, thus slowing down its adoption.
4. The demonetisation in 2016 left businesses and ordinary citizens with no option but to use UPI. The digital payment services launched by the government and the positive policies of banks increased awareness of online payments among the people.
5. UPI has played the most crucial role in reducing dependence on cash. Its penetration into rural and unorganised sectors is considered one of UPI's many remarkable achievements. QR codes and QR-based payments have enabled small vendors, farmers, and illiterate people to conduct cashless transactions.
6. Due to its ease of use, government incentives, and availability in multiple languages, UPI rapidly gained popularity. Private companies like Google Pay, PhonePe, and Paytm also supported it. Therefore, modern technology and universal acceptance proved crucial for UPI.
7. Due to the lockdown, the volume of online transactions for essential goods and services increased. At this time, the availability of a platform like UPI made this secure and contactless payment system familiar to everyone.
8. Currently, billions of transactions are conducted through UPI in India and globally. It is recognised as one of the universally accepted and successful real-time payment systems worldwide. UPI has emerged as a robust system supporting the economy with features like auto-pay and credit-based payments. India's connection of UPI to the international market is increasing the global acceptance of this system.

### Comparison with Other Global Systems



**Figure 1 Comparison of Global Digital Payment Systems**

Compared to other countries in the world, India's online transaction service offers a more secure and quicker service than other countries.

This real-time transaction facility is also provided in Singapore through the **PAYNOW** system, but it is limited to that country only.

Brazil's **PIX** system allows for fast and free financial transactions, but it cannot handle multiple bank accounts simultaneously.

Although the United Kingdom has a **FASTER PAYMENTS SYSTEM**, it is more formal and its focus is on banks rather than the user.

Emergency transactions are not always possible with the **ZELLE** or **ACH** systems in the United States.

Thanks to its two-tiered system, ease of use for everyone, and QR code system, **Indian UPI** has received a green signal in both urban and rural areas. While other global systems are stuck with cash card systems and

older technology, the Indian UPI is user-centric and mobile-based. This is why many countries are studying the Indian UPI model and trying to create similar systems. India has created a beacon in the global digital payment sector.



**Figure 2 UPI Advantages And Disadvantages Overview**

**Table 1 Advantages and Disadvantages of UPI**

Advantages	Disadvantages
Your Bank in Your Pocket	No Internet—No Payment
Money Moves at Speed of Message	Smart Tech—Smart Fraud
One Click Many Banks	Battery Power Off—Payment Off
From Street Vendor to Shopping Mall (Accepted Everywhere)	Accidental Transaction (Too Easy to Pay)
Cashless Without Cost	Trust Issue for Technology
Scan...Pay...Done	Phone Lost—Risk High

**Conclusion**

**1. Increased inclusivity in rural and urban areas:** UPI is now widely used in both villages and cities, making digital payments accessible to people from different social and economic backgrounds. This wide reach has helped reduce the gap between rural and urban financial services. As a result, more people are becoming part of the formal digital economy.

**2. Easy and instant availability boosting usage:** UPI allows users to make payments anytime with just a few clicks on their mobile phones. Its speed and convenience have encouraged people to use it for daily transactions. This ease of access has significantly increased its popularity among users.

**3. Most successful and reliable digital system in India:** UPI has proven to be efficient, secure, and dependable for millions of transactions every day. It has gained public trust due to its consistent performance and low failure rate. Because of this reliability, it is considered India’s most successful digital payment system.

**4. Digital India initiative achieved through UPI:** UPI has played a major role in promoting cashless transactions across the country. It supports the Digital India mission by integrating technology into everyday financial activities. This system has simplified payments and strengthened India's digital infrastructure.

**5. Strengthened India's global fintech identity:** UPI has helped change India's image from a primarily agriculture-based economy to a fintech leader. Many countries now recognise India's innovation in digital payment technology. This has given India a strong and modern identity on the global platform.

### **Recommendations**

**1. Affordable internet access in rural and remote areas:** Low-cost internet services should be provided to ensure wider participation in digital payments. This will help illiterate and rural populations access UPI easily. Better connectivity will promote financial inclusion across all regions.

**2. Strengthening technical infrastructure:** Improved digital infrastructure is needed to reduce transaction failures and delays. Strong networks and servers can handle high transaction volumes smoothly. This will increase user confidence in digital payment systems.

**3. Promoting digital literacy:** People should be educated on how to use UPI safely and effectively. Training programmes can help users understand digital tools and avoid mistakes. Digital awareness will encourage responsible and confident usage.

**4. Enhancing cyber security measures:** Stronger security systems are necessary to protect users from fraud and data theft. Advanced encryption and monitoring can prevent cybercrime. This will make users feel safer while using UPI services.

**5. Expanding UPI globally:** Connecting more countries to UPI will enable seamless international transactions. It will support global trade and cross-border payments. This expansion will further strengthen India's position in global fintech.

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