# Digital Payments: India's Dominance in UPI Sector

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#### **Abstract**

An entirely novel type of payment system in India called the Unified Payments Interface, or UPI in short, permits users to send money swiftly and securely. People can pay bills, make payments, and make contributions all on the same platform. UPI has simplified and improved the purchasing procedure across India, revolutionizing it. The UPI system also has a lot to offer in terms of ease, security, cost efficiency, and other advantages. However, there are significant drawbacks to UPI's implementation, including safety concerns and users who lack sufficient system understanding. Despite these difficulties, UPI has an abundance of potential to change the Indian online payment market. This could offer new chances for business entities to successfully reach out to clients. The basics of India's Unified Payments Interface (UPI), containing the benefits, issues, and candidates for Indian businesses, will be given in this article. This article is focused on discussing successful operation of UPI and its adoption at global level.

Keywords: Unified Payment Interface, Real Time Payments, Digital Payments

#### Introduction

"NO POWER ON EARTH CAN STOP AN IDEA WHOSE TIME HAS COME"

It means no power on earth can stop that idea from moving forward until the right time has come.

On July 24, 1991, Dr. Manmohan Singh presented India's most land-marked budget in the House. However, the setting in which it is being used right now is the era of digitizing and de-dollarization. Looking at the melody of UPI, it would not be incorrect to say that the time for an international form of UPI has likely come. In this significant speech of the budget, this popular conversation of Victor Marie Hugo became the highlight of the path ahead of India. There might be a few changes made, but now has come. This has been ongoing for quite some time, as requests for dollarization from all over the world have been making an effort to oppose the dollar's hegemony. (Pattanayak B., 2022) The RBI began an enormous drive to promote the globalization of the rupee, and as a result, over 35 countries around the world have declared interest in doing trade in the rupee. A significant update is accessible in this context with the recent emergence of BRICS. The nation is also thinking about partnering to introduce a new world currency. The entire world is debating whether an improvement to the US-dominant trade and financial system may be offered by the emergence of UPI, rupees, and other BRICS countries, or not. The government's push for electronic commerce, growing web and smartphone use, and the rise of e-commerce are just a few of the factors that have led to the growth of India's digital ecosystem. Through an array of programs like Digital India, Make In India, and Start-up India, the Indian government has been diligently promoting the application of digital technology. The aforementioned initiatives seek to boost the use of technological advances in a number of businesses, including educational institutions, healthcare, and agriculture, as well as to foster an atmosphere that will support start-ups. The expansion of the digital ecosystem was significantly helped by a boom in web & phone use in India. In India, there were around 800 million people using the internet by 2023, according to the Internet & Mobile Association of India. The number of mobile wallet users in India has grown as a result of the rise in internet users, which is anticipated to reach over 900 million users by the year 2025 (report, 2022)<sup>2</sup>. These statistics suggest how UPI has grown more and more widely used across the nation as a practical and safe platform for online transactions. The expansion of the ecosystem for online payments has been significantly helped by the rise in online and cell phone use in India. E-commerce has also played a significant role in the growing popularity of India's online payment ecosystem. By 2026, the Indian e-commerce market is anticipated to grow at a CAGR of 31% and approach \$200 billion [6]. By 2025, there will be 220 million more people shopping online in India as an outcome of the expansion of the e-commerce industry. Several other private firms contribute to India's digital payments ecosystem. The aforementioned businesses provide numerous ways to make digital payments, such as mobile wallets, UPI transactions, and QR code-based transactions. (BUREAU, 2023)<sup>3</sup>

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#### **Review of Literature**

**Neema, K.** and **Neema, A.(2016)<sup>4</sup>** Digital payments initially emerged in the 1980s, so it's not a recent or new technology. However, all of the devices that are being used to carry out online payments have undergone modifications. The UPI-Unified Payments Interface method of digital payment is reviewed in this paper, along with its building design, technology, operations, parties involved in UPI transactions, benefits, and challenges. Additionally, the paper covers various UPI apps currently in use, along with substitute methods of payment, and compares and contrasts them with UPI transactions.

Gochhwal, R. (2017)<sup>5</sup> The study charts the development of India's banking sector and thoroughly analyzes the Unified Payments Interface's technology, concentrating on its design and security systems through an empirical and philosophical review is experiencing strong customer acceptance and represents an important boost. On today's system for payments with regard to cost, consumer ease of use, settlement intervals, and security, UPI can be an excellent vehicle for facilitating financial inclusion in India and can help bring an important percentage of individuals under the auspices of the digital economy.

**Kumar,R et.al** (2020)<sup>6</sup> This study studies the design underlying the UPI protocol using seven well-known UPI apps, with the goal of conducting an extensive safety evaluation of the protocol. We find previously unreported multi-factor authentication design-level weaknesses in the UPI 1.0 specification that, when coupled with an installed attacker-controlled use, can result in serious assaults. Even if a victim has never used a UPI app, the holes in the attack's extreme version could enable linking and emptying of their bank account.

**Bijin P.** (2019)<sup>7</sup> The adoptions of mobile and card payment systems are two key components of this initiative. In this study the researcher aims to identify the customer preference towards unified payment interface and to know the impact of unified payments interface in customer satisfaction. Mean, F-Test, ANOVA, and Regression analysis were all used by the researcher to evaluate and comprehend the data. This survey concluded that consumers enjoy a positive view of the unified payments interface.

Mahesh A, & Ganesh Bhat. (2021)<sup>8</sup> The "Unified Payments Interface (UPI)" was developed by the "National Payments Commission of India (NPCI)" to help with electronic transactions. This excellent, fresh, and affordable technology makes it attainable for anyone to use digital payment services. The Unified Payments Interface (UPI) is a potentially ground-breaking method of sending funds using a virtual payment address set up by the National Payments Corporation of the Nation (NPCI) in order to develop a paperless and cashless economy. Thus, it must be evaluated for its ability to help realize the digital economy.

**Devi,K** and **Devadatta,I** (2021)<sup>9</sup> E-commerce originally referred to the act of carrying out business transactions online with the aid of modern technology like Electronic Data Interchange, or EDI, and Electronic Funds Transfer (EFT), which allowed users to conduct electronic transactions and exchange business data.

Shahid,M. and Fahad (2022)<sup>10</sup> In order to get a specific result on usage and suggestion intents, we have switched the subject matter of this study to variables that influence UPI adoption by Indian customers based on the Diffusion of Innovation (DOI) theory. The study's findings showed a significant positive relationship between users' intention to use UPI and relative advantages, complexity, and observability—the main variables influencing adoption of UPI. Higher satisfaction and tendency to use are additionally associated with existing users' recommendations of UPI. In general, the study methodology aids in comprehending how various UPI aspects affect usage and recommendation intentions.

Saha, P and Kiran, BK. (2022)<sup>11</sup> For baby boomers, adoption of the Unified Payments interface (UPI) is still in its early stages. This study investigates the variables influencing baby boomers' behavioral determination to adopt UPI. As the theoretical basis for the research, the Unified Theory of Acceptance and Use of Technology (UTAUT) has been widened to include ubiquity, privacy risk, and perceived security.

**Shanmugam, K and Arthi** (2023)<sup>12</sup> The National Payment Corporation of India (NPCI), which oversees and advertises the UPI system of payment, is in-charge of UPI regulation. This payment platform case study will offer complete information regarding UPI, its initiatives like UPI123 and "UPI Chalega," and its development. The case study goes into further detail on the development of UPI, frequent issues with UPI payments, and an analysis of NPCI statistics on UPI payments.

**Gupta, M. et.al** (2023)<sup>13</sup> We found that prior UPI use negatively affected both the association between societal factors and use behavior and the correlation between expected performance and behavioral intention. The relationships between perceived danger, hedonic motivation, behavioral intention, and use actions, however, were not substantially influenced by prior UPI use. These results enhance our knowledge of the variables affecting CBDC uptake and usage behavior in India.

**Guha, S. and Gupta, P.** (2023)<sup>14</sup> The government's official demonetization tactics, the lockdown set on by the COVID-19 outbreak, the level of mobile phone penetration, and the prevalence of the internet in India are only some of the elements that have played a role in UPI's popularity growth. According to this article, UPI has improved the accessibility of money in India and may serve as a template for additional countries that are developing and decide to make a transition to a cashless society.

### **Objectives**

- ◆ To know the inception of Digital Payments in India.
- ♦ To identify Digital Payments in India.
- To know the trends of UPI in India and its adoption by different countries.
- ◆ To understand the concept & mechanism of UPI.
- To know the inception of Digital Payments in India.

India has a huge potential for digital payments. (Desk, 2023)<sup>15</sup>As of October 2021, the country had around 1.18 billion mobile connections, 700 million Internet users, and about 600 million smartphones. These numbers are growing rapidly each quarter. With about 25.5 billion real-time payment transactions, India will rank first in the world in terms of the number of transactions in 2020. In 1996, the Industrial Credit and Investment Corporation of India (ICICI) introduced online banking services in India by using electronic banking at its branches. Banks including Citi, IndusInd, and HDFC provided online banking services later in 1999. The trend continued to grow, with increasingly more banks launching net banking services in India. As a consequence, multiple new banks started giving offerings for buyers, beginning in the era of digital transactions in India.

India Continues to Top The Digital Payments Charts!

46%
of Global Real-Time Payments done by India

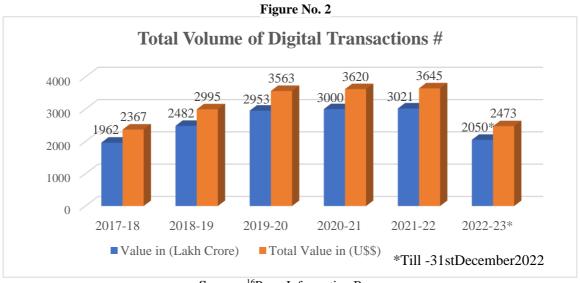
South Korea Thailand China Brazil India
India's payments more than the next 4 leading countries combined

**SOURCE: 15 Janam Online** 

According to the survey, India accounted for an astonishing 46% of all real-time payments made globally, outpacing the total amount of digital payments made by South Korea, Thailand, China, and Brazil put together. Brazil took the number two position among the nations on the list with 29.2 million transactions, followed by China with 17.6 million transactions.

# ♦ To identify Digital Payments in India.

The total value of digital payments during the last five financial years and in the current financial year are as under:

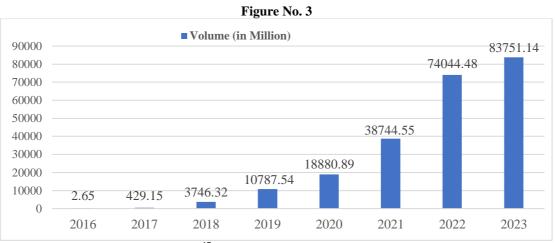


**Source:** <sup>16</sup>Press Information Bureau

**#Note:** The Digital payment modes considered are BHIM-UPI, IMPS, AePS, debit cards, credit cards, NEFT, RTGS, PPI, and others.

The aforementioned information demonstrates that there has been a growth in online transactions from the fiscal years 2017–18 to 2022–23, with the greatest spike of Rs. 3021 lakh crores, or 3645 US dollars, occurring in the fiscal year 2021–22 and the lowest increase occurring in FY 2022–23. It was expressed in lakh crores and 2367 USD in 2017–18. Furthermore, since the graph's data only extends through December 31 of 2022–2023, a fall in 2022–2023 has been observed.

# UPI Journey in India with Year on Year (YoY)

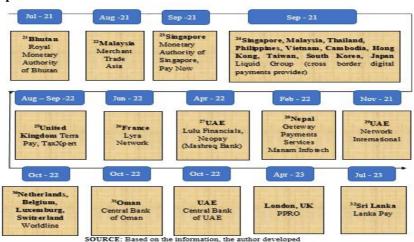


**Source:** <sup>17</sup>National Information Center (NIC)

Over 100 million transactions of Rs 67 billion were done through UPI in 2017, showing a 900% year-over-year rise, and over Rs. 1.5 trillion transactions were conducted in 2018, reflecting a 246% year-over-year growth. And although UPI had a 67% year-over-year rise in 2019 with over Rs. 2.9 trillion in transactions carried out, that growth dropped to 63% in 2020 with over Rs 4.3 trillion in transactions completed in December of that year. In June 2021, there were approximately 1.49 billion transactions totalling Rs. 5.6 trillion, which represented 72% year-over-year growth. At the end of the calendar year 2022, UPI had a total transaction value of Rs. 125.95 trillion, higher than the previous year, according to NPCI. Year over year (YoY), there is an increase of 1.75 times. It is noteworthy that in FY22, the total value of UPI transactions amounted to roughly 86% of India's GDP. The total number of transactions handled by UPI by the end of the 2023 calendar year will be 83.75 billion.

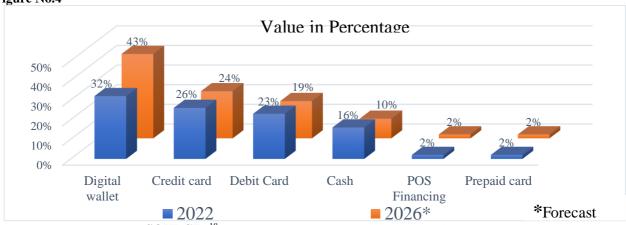
# ♦ To know the trends of UPI in India and its adoption by different countries.

#### **UPI** goes global: Adoption in different countries



# **Global POS payment methods**

Figure No.4

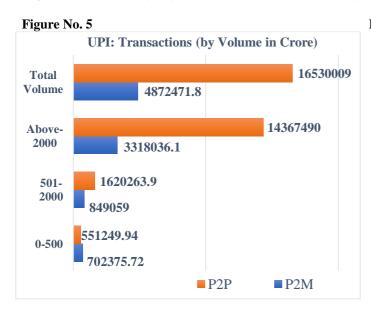


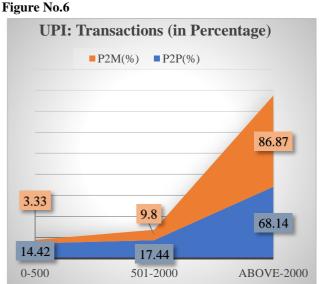
SOURCE: 18THE GLOBAL PAYMENTS REPORT 2022-23\*

The remainder of the graph depicts the global payment system using five different payment methods, including digital wallet, credit card, debit card, cash, point of sale, prepaid card, etc., with digital wallet being the most popular. 32% and 43% of transactions will take place in the future. The most popular prepaid card, in the same order, is 2%, and the same projections are made for the future. The study states that the use of credit cards has decreased, from 26% in 2022 to 24% in 2026. If we continue in the same order, the third position belongs to the debit card, with an estimated growth rate of 23% in 2022 but a fall to 19% in 2026. In the same order, cash and point of sale have decreased. Point of sale is 2% in 2022 and 2% in 2026, whereas cash is 16% in 2022 and 10% in 2026.

# ♦ To understand the concept & mechanism of UPI.

# UPI, Person to Person (P2P) and Person to Merchant (P2M) Transactions in the F.Y. 2022-2023.



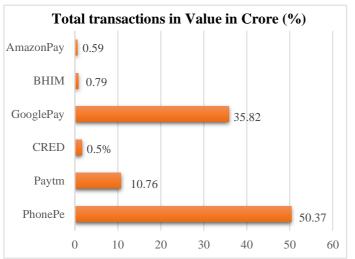


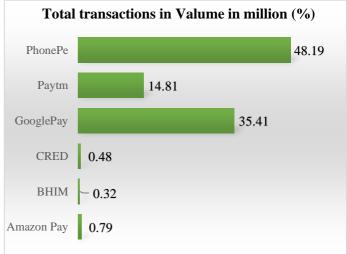
\*The data presented is taken from April 2021 to August 2023. SOURCE: <sup>19</sup>National Payment Corporation of India (NPCI)

The graphs mentioned earlier (5 and 6) demonstrate the proportion of total UPI transactions that are between individuals and between individuals and merchants, respectively. Graph no. 5 displays the total number of transactions using three parameters, which are as follows: first, it is divided from 0 to 500; then, it is divided from 501 to 2000; and finally, the transactions above 2001 are shown. Therefore, it is evident from the view that since 2001, the most transactions have occurred in the aforementioned categories, with the transactions of people totalling Rs. 14367490 crores compared to

Rs. 3318036.1 crores. Also, graph no.6, the percentage of this is evident, with those born after 2001 making up the biggest percentage (68.14% in P2P and 86% in P2M), correspondingly becoming the highest, at 87%.

## UPI transactions by Value in Crore and Volume in Million in April 2021 to August 2023





\*The data presented is taken from April 2021 to August 2023. Source: <sup>19</sup>NPCI

Figures 7 and 8 demonstrate that 96.5% of all transactions were made using solely Google Pay, PhonePe, and Paytm. The largest usage is for phone pay, which is 50.37%, followed by 35% on Google, out of the remainder. It comes within 05%. Paytm 10.76 is in third place, followed by 82%. Graph No. 8 is available. In addition, Volume in Million displays the number of transactions processed by an application. PhonePe has triumphed in this battle as well, taking top place with 48.19 percent, followed by Google Pay and Paytm, each with 35. The foot holds the second and third spots with 41.41 and 14.81.

# **New targets in UPI:**

<sup>20</sup>On September 6, the NPCI propelled payments of 100 billion monthly transactions. They include conversational payment options, BillPay Connect, UPI Tap & Pay, and UPI Lite X. UPI has reached benchmark of 10 Billion payments till August 2023.

# ♦ To know the trends of UPI in India.

Figure No.9



**SOURCE:** <sup>18</sup>THE GLOBAL PAYMENTS REPORT 2022-23

\*Forecast

Global financial transactions in 2018 totalled \$11.6 trillion, or 27% of the overall transaction value. In addition, as to the Covid-19 pandemic epidemic, there was a substantial drop in the value of worldwide cash transactions in 2021, falling to 7.8 trillion US dollars, and the percentage decreased to 17%. In 2022, there were 7.7 trillion dollars in total global transactions, and the percentage fell to 16%. Global Payments Report (GPR) estimates that by 2026, there would be approximately 6 trillion dollars in operations, with a ratio of 10%.

#### Discussion

"UPI is utilised at all levels, including big-box stores and street vendors. India has the largest percentage of digital transactions today out of all nations. The expanding global presence of UPI also portends better prospects for the Indian fintech industry, which drew \$4.8 billion in funding in 2022 and is anticipated to rise to a \$2 trillion market by 2030. The biggest difference that UPI has made, is how Indians conduct business. Cash transactions made up 90% of the overall volume in 2017 but less than 60% in 2021, according to data by Global Data. The remaining area has been occupied by UPI and other digital transaction platforms. In India, cash is still the king, but UPI has successfully carved out a market for itself. Due to UPI's simplicity, dependability, and affordability, businesses and individual users in India have used it widely.

#### Conclusion

UPI has proved to be a beneficial platform for digital payments. Although the epidemic was a factor in India's digital payment landscape's advancement, it wasn't the only one. India's digital path has been picking up speed recently. India had the greatest adoption of fintech rate in the world in 2019—before the pandemic. By 2025, it is predicted that India's digital payments market would have increased by more than 300% from its present size. Digital payments have shown tremendous growth, especially when you consider how many people in India were previously unbanked.

## **Suggestions**

It is fascinating to investigate India's dominance in digital payments. By comparing India to other economic giants, this study has examined the policies and practices that have helped it rise to the top. UPI payments are showcasing wide reach among all the levels of society.

We observed the massive impact of digital payments' socioeconomic effects, particularly their contribution to economic expansion and social inclusion. Following suggestions are given:

- For making UPI global, more steps need to be taken by Govt. Policies
- The mechanism of UPI network should be restructured for global availability.
- For accomplishing the new target of 100 billion transactions per month of UPI payment, easy access of internet to each location is required.
- Another concern in digital payment is cyber security. With increasing number of digital transactions, number of
  online frauds has also been increased. For resolving this problem, mechanism of the payment apps needs to be more
  protected.

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