

# Trends in the Growth of UPI - A Systematic Literature Review

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## ABSTRACT:

In recent years, the Indian Government has taken many initiatives measures to move in the direction of becoming a cashless economy. One such major initiative is the introduction of Unified Payment Interface (UPI) system. The Unified Payment Service is a real-time payment system developed by the National Payments Corporation of India (NPCI), an organisation set up by the Reserve Bank of India and the Indian Banks' Association (IBA). This system allows the consumer to link their bank accounts to a Virtual Payment Address (VPA), which helps in making and receiving payments. UPI is a single platform that merges various banking services and features under one umbrella. Real-time bank-to-bank payments can be made using a mobile number or virtual payment address (UPI ID).

After being released in 2016, it has seen tremendous growth, with a steady increase in P2P (Peer to Peer) and P2M (Peer to Merchant) transactions, across the country. India's Unified Payments Interface (UPI) continues to grow at a breakneck pace. During the financial year 2021-22 year's transaction volume and value have virtually doubled compared to the previous year, rising 99% in volume and 90% in value. In many ways, UPI has transformed India's digital economy and has accelerated the country's transition to a cashless society.

Surveys and studies reveal that, multiple factors have contributed to the growth of the UPI system in India. This paper involves a comprehensive review of research articles published during the period of 2016 to 2021 which identified the factors which have steered the progress of UPI system in India. The paper also examines the significance of the major contributory factors.

**Keywords:** Unified Payment Interface, Cashless Economy, Virtual Payment Address, P2P, P2M

## I. INTRODUCTION:

Unified Payments Interface (UPI) is a real-time fund tranchefer system developed by the National Payments Corporation of India (NPCI), an

organization set up by the Reserve Bank of India (RBI) and the Indian Banks' Association (IBA). The system was launched in 2016 and has seen significant growth in usage since then.

UPI allows consumers to link their bank accounts to one single mobile application and use a virtual payment address (VPA) to make and receive payments. This eliminates the need to share sensitive personal and banking information, such as account numbers and IFSC codes, with merchants and other customers. UPI also enables consumers to check their account balances and view transaction history within the same app.

Though For mass adoption around the nation, internet connectivity becomes a very important factor, (Kamalaravanan, 2022) suggested that internet connectivity can be strengthened by using high speed of network like 5G network so that the server problems and transactions failures during UPI payments can be avoided. This problem has been improving in India, with fast connectivity spectrums, like the 4G and now the 5G.

UPI quickly gained popularity in India, with the number of transactions growing rapidly. In August 2017, UPI recorded 5 million transactions. By December 2017, the number of transactions reached 140 million, and by August 2018, it reached 500 million.

The year 2020, has been very successful in terms of the popularity of UPI around the country, as COVID – 19 resulted very beneficially for it, (Agarwal, 2020) studied that the increase in usage is attributed to the higher issuance rate of corporate and retail accounts transferring funds from bank accounts to mobile wallets. According to Mr. Niraj Mittal, a significant number of individuals who were hesitant to switch to mobile banking apps are now contemplating the transition due to its convenience. He stated that there has been a 29% increase in transactions in the first quarter of 2020 compared to the same period in 2019.

In 2020, UPI transactions crossed the 2 billion marks, and it has become the most popular digital payment method in India. With the rise of e-commerce, UPI transactions have been growing

exponentially, and in the year 2021, UPI transactions crossed the 5 billion marks, with an average of over 14 million transactions per day.

The UPI allows instant money transfer between any two bank accounts by using a virtual payment address (VPA) without entering bank account details. UPI transactions can be made through various channels such as mobile apps, USSD, and ATMs. The system has also been integrated with various third-party apps, such as Google Pay and Paytm, making it more accessible to the general public. The use of these 3rd party apps, are becoming the most popular in case of P2M transactions, (Kamalaravanan, 2022) found out that most (100%) of the merchants are allowing PhonePe, Paytm, BHIM app and Google Pay in their business.

## II. LITERATURE REVIEW:

A Literature review can call as an overview, of the previously, published works, such as reports, articles, published data on a specific topic. It helps the current researcher to get an overview of all the current developments that have been done on the specific topic, and what more can be explored.

Kamalaravanan (2022) found out that awareness and security, are some of the major factors of people taking up UPI, they said, a better understanding of the technology in people is needed, for its mass adoption and a better all-round access to banking, across all the demographics of the nation and the introduction of biometric security systems in phones will positively encourage electronic payment systems in the nation. Also, it was found out that, awareness, satisfaction and risk. Are some of the major factors, for the mass adoption of UPI.

The relative advantages and decreased payment processing fees are some of the major factors that encourage merchants to adopt m-payment systems (Moghavvemi, 2020). Similarly, barriers such as technological incompatibility, complexity, the costs of implementation, and the lack of critical mass hinder the adoption of the system. Cultural barriers are one of the main factors impacting technology adoption and use. The slow rate of adoption and diffusion of m-payments among customers and merchants highlights that the academic contribution was restricted.

Kamal (2021) opined that many digital players are encouraging to go digital for the consumer by scanning the QR code to settle the payments which is better instead of swiping the e-cards, avoid infection and to withhold the loss in transaction and mentioned that people with less

knowledge is also made protected with confidence to make digital transaction by appealing in the advertisement from the RBI. Though there may be positive and negative impact on economy but during the Covid-19 this digital payment become boon for the common people.

The number of users using these apps is increasing significantly day by day (Bal, 2020). The wallet facility of these apps attracts a lot of users, The authors analysed that among the three most popular payment Apps used in India namely, Google Pay, PhonePe and Paytm, Google Pay is highly preferred for making high value transactions as it makes payment directly from the bank account as compared to other apps.

UPI transactions have shown a tremendous growth, consistently maintaining over 100% year-on-year growth, 13% of the overall P2M UPI transaction values have ticket size Rs 0-500, while 17% have ticket sizes are in the range of Rs 501-2000, In the 12-month period April 2021 to March 2022 the banks were to receive Rs 10.14 billion for the P2M UPI transactions with ticket sizes in the range Rs 0-2000 (Das, 2022). P2M payments getting "DIGIFIED", to grow to US\$1.1trn by 2025, Retail payments to merchants (P2M), the "commercially relevant pool" for payment entities, are expected to witness a 29% CAGR to US\$1.1trn by 2025 on the back of improving offline merchant penetration (20%) and ecommerce penetration and rising propensity for cashless payments (HDFC Securities, 2021).

According to Agarwal (2020) with COVID-19, m-banking will become the new standard for many firms and sectors. During the COVID-19 outbreak where people were encouraged to keep up with the public sphere, there has been an increase in orders placed on ecommerce websites and apps for food, entertainment and food. Someone who performs any such services on ecommerce platforms can pay through the payment gateway. It ensures sensitive information, such as credit card numbers, hosted on an interface or on an ecommerce website, is transmitted securely through various channels, thus making the digital payment option safer and safer (Jain, 2020). Similar to what happened during the 2008 financial crisis, it is extremely difficult for many nations to accept the digital revolution and reinvent the way that transactions are made using the new M-banking application that an up-and-coming Fintech firm offers. Numerous customers who had previously been hesitant to switch to applications for mobile banking now see it as a simple mode. Corporate and retail entities are issuing mobile wallets at a greater pace than

consumers, which has resulted in 29% more transactions in Q1 2020 compared to Q1 2019. Customers have reported that mobile banking has been successful in meeting their demands while having few downsides and has given them this happiness. The promotion of mobile banking services in India has shown to be supported by elements including rising smartphone and internet user penetration, accessibility, convenience, and security of digital transactions.

Rastogi (2021) current study brings out the peripheral factors which affects the financial inclusion and the relationship between the financial inclusion and the economic development. He finds that the major drivers which support the sustainability of the UPI platform are accessibility to the technology, convenience, cost effective and citizens voluntary exclusion in the financial inclusion. One of the biggest risks to online payments is the loss of payment information, personal information, and false customer rejection(Sujith, 2017). So, we must utilise the technology at our disposal right now to ensure a decent minimum degree of security on the network until the adoption of biometric security systems becomes widely used.

Franciska (2017)learned that moving towards a cashless economy is not only a safer option compared to cash transactions, but it is also a time-efficient method that aids in maintaining records of all transactions. As of March 2016, India had over 100 crore active mobile connections and over 22 crore smartphone users. The most significant hurdle facing the government in its bid to establish a cashless economy is the public's lack of knowledge and awareness, as well as their concerns about the possibility of financial loss and the risk of hacking associated with digital payment methods(Baghla, 2018). To promote sustainable economic growth in the long run, the government must address these challenges and encourage the widespread adoption of digital payments.

Yash Madwanna (2019) discussed how the attacker could exploit the security loophole present in the BHIM UPI 1.0. For the attack to happen, the victim had to install the attacker- controlled malicious App; so the attacker will be able to launch the attack. In later update 2.0, this security loophole was covered well. Smartphone Penetration, Internet penetration, digital Literacy, Transaction Failures, Merchant's Infrastructure, were some of the major factors in the growth trends of UPI(Jain, 2020).

Thomas (2017) said that India holds enormous growth potential particularly in the field of mobile internet due to high population and

increasing penetration of internet into rural population. These statistics again indicate a huge potential for adoption of UPI by the Indian customers.Easy and fast Transaction, Secure and Cheap, Convenience, Prizes and reward Points, security Issues, Poor Network Connectivity and Lack Of technical Knowledge, are some of the important factors that, impacted the Growth of UPI(Rasna, 2021).Moreover, he said that private mobile companies have made significant investments in developing merchant networks to guarantee a seamless and error-free payment procedure. Also, they have included cashbacks and incentives to entice users, if only for a trial use. Nowadays, the client bases of Indian mobile wallet providers exceed those of all currently available bank-supported applications combined.

Neema (2018) Found out that, Rural area consumers are still not aware of this existing technology (UPI), they further concluded, Consumers focus majorly on Security issues i.e. in case if the mobile is stolen than its bank details & account are unlocked by anyone. Thus, some customers are not in support to install UPI apps in their phones. Banks and the government are working to increase citizen knowledge of UPI in order to advance the engagement and use of UPI technologies and achieve the goal of Digital India.

Arvind (2021)learned that the level of consuming is also increased and low-cost service that it provides to their users is more-effective and the people feels easy to use this application. UPI makes the mobile phones as the primary device to make all payments and brings enormous changes in digital payment sector. The study throws light on mobile based era for all the transaction.

Kakade1 (2017) said enormous growth in smart phone users and penetration of internet in rural services and that There is no separate customer care line if any problem in payments like payment in pending and payment is failed but money is not refunded. They also further added that Digital literacy is too less.

Mahapatra (2022) said that Growth in the number of smartphones in the country, adoption by the merchants and convinience of usage as some of the factors of UPI. Quality system and process of UPI will positively enhance the satisfaction of its users. As discussed above, satisfaction would lead to high usage intention. The intention to recommend is dependent on the satisfaction of the existing user(Fahad, 2022).

Sarkar (2019)mentioned several reasons why digital payment systems are becoming more popular. These include ease of use, the perception

that they are helpful, and the convenience of being able to make payments anytime and anywhere. Additionally, the increasing prevalence of smartphones and the growth of non-bank payment providers are contributing to the rise of digital payments.

Eswaran, (2019) study revealed that apart from education, demographic factors do not significantly influence the adoption of digital payments. Individuals who have pursued education beyond matriculation and are knowledgeable about the internet are more likely to prefer digital payment modes. Also, discrepancies between the expectations of Indian consumers and their satisfaction with the major digital wallet brands available in India. These discrepancies present a challenge to the long-term viability of these wallet companies unless they take immediate and effective measures to address the gaps (Bagla, 2018).

Sahoo (2022) concluded that the usage of smartphones and the internet in rural services has increased significantly in recent years. This creates a significant opportunity for Indian consumers to embrace UPI. We are aware that the difficulty of moving hard currency throughout the country will be lessened or eliminated via cashless payment.

Ajmera (2020) said that trust is a major influencing factor, E-wallet companies should ensure that all the quality parameters like safety, security, authorization, authentication, 24/7 support, privacy concerns should be controlled effectively to develop the trust of consumers. Internet usages as well as the precise progress of information technology have revolutionized the way of exchanging everything around human circumference. This resulted into the gigantic growth in number of various digital payment modes (Dadhich, 2018). Also, to take advantage of these influencing factor, quality, E-wallet companies should provide 24/7 online toll-free support to the address the issues and grievances. Independent variables like, income level, education level, access to Internet have a positive relationship with the dependent variable customer adoption and satisfaction. The intensity of relation is strong for transaction cost and efficiency which shows a positive relationship.

Tikyani (2022) said Usage and adoption of mobile payments is becoming very common these days, people are having more than one payment app in their mobile phones, most common are G-Pay, Phonepe and Paytm. In the rural or semi-urban areas people are not using or adopting mobile payments frequently this can be result of different demographic factors and policies of the

government regarding financial inclusion and financial literacy.

Indoria (2021) said It must advertise more and must focus on word-of-mouth publicity. It is both a constructive mean as well as a destructive tool if not used properly. He also added that the ease and comfort of consumer must be a priority so that the user feels connected and can trust the service and lastly, he said that cashbacks can also be a positively effecting factor in the adobtion of UPI.

Singh (2019) stated that e-wallets represent the modern version of plastic money. This suggests that the use of technology for digital payments has enhanced the banking industry's effectiveness and is contributing to the goal of becoming a cashless society. On the other hand security and privacy concern, are some of the major factors that are hindering the growth of UPI (Khanra, 2020).

Sarika (2019) studied that the act of demonetization has led to an increase in the public's adoption of e-payment methods, resulting in more cashless transactions. This shift towards cashless transactions requires the use of various digital payment methods such as credit/debit cards, mobile wallets, and net banking. It shows a move towards a cashless economy, supported by the government's Digital India initiative to encourage individuals to adopt digital payment systems. However, a key challenge is the implementation of policies to enhance internet security to safeguard against online fraud and cybercrime.

Tiwari (2019) studied that in a developing nation like India, the expansion of internet access and Wi-Fi networks has unfortunately led to an increase in cybercrimes that can impact people's financial well-being, social standing, and personal identity.

George (2021) said have analyzed that there were various reasons such as contactless payment, convenience, and ease of pay for the adoption of mobile wallets during this period.

Chawla (2022) said Nowadays, all of these requirements are met by a single smartphone, and online retailers are pressuring customers to make purchases via mobile devices rather than through websites. Convenience is the perceived ease with which mobile apps may be used to purchase goods. There are however certain concerns associated with digital wallets and mobile payments, such as lack of usability, efficacy, trust, and a proper safe mechanism for online payments.

### III. RESEARCH METHODOLOGY:

The motivation of this research to the authors was to find out all the possible factors that

have led to the growth of UPI, in the Nation. For this, they have gone through the major research papers, available on this domain. It was found that There were some, factors that were repeatedly mentioned by various Prominent authors. This paper has listed down all of the prominent factors that have been already found and have tried to link them to the Growth of the UPI.

The Authors first deeply analysed the Growth of UPI, in India, from the NPCI website, to know the different trends in its growth. The authors have segregated the Growth of UPI, into two parts, P2P and P2M. Each of these Parts were further Sub-divided into Volume and Value.

For researching the factors, the authors have chosen the secondary data route. They have gone through 20 research papers from very prominent authors, out of which they found 16 papers to be very prominent, listing factors very clearly. For searching this, data material, they have used keywords such as “Unified Payment

Interface”, “Cashless Economy”, “Virtual Payment Address”, “P2P”, and “P2M”.

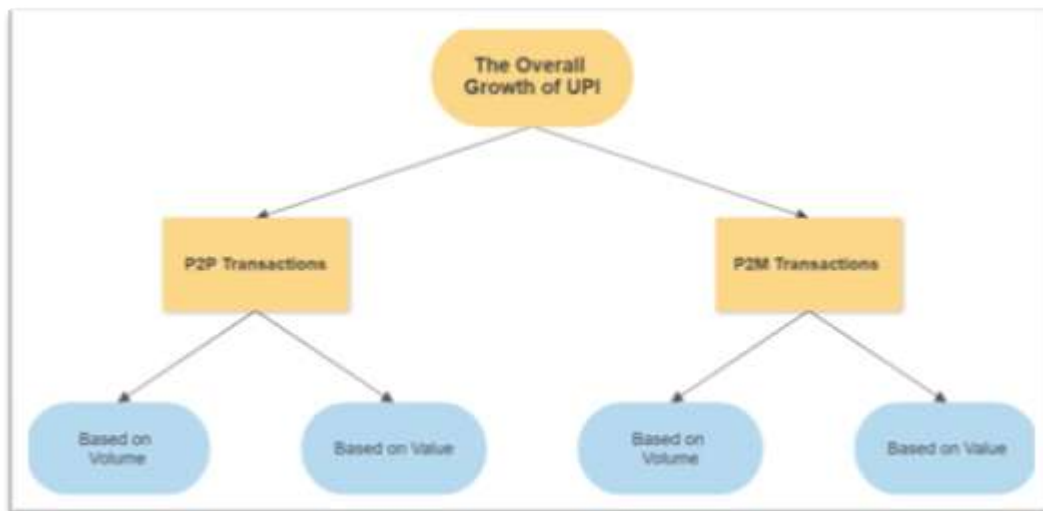
After an extensive review of this literature, they found the major factors to be, the overall UPI infrastructure in India, The knowledge and culture of UPI, the Economy in the usage of UPI, The overall customer satisfaction, security over the usage of UPI etc.

After this, the authors went on to analyze, which of these factors were most predominantly listed, by multiple authors, and then they linked that fact, to that particular factor’s importance, leading to or affecting the Growth of UPI.

In this way, the authors also have tried to, find out which, of all the identified factors has been the most prominent that led to or affected the growth of UPI.

**The Growth of UPI in the Country:**

The authors have segregated the Growth of UPI, into two parts, P2P and P2M. Each of these Parts were further Sub-divided into Volume and Value.



Its important to know, the meaning of some of the terms that are used in this analysis:

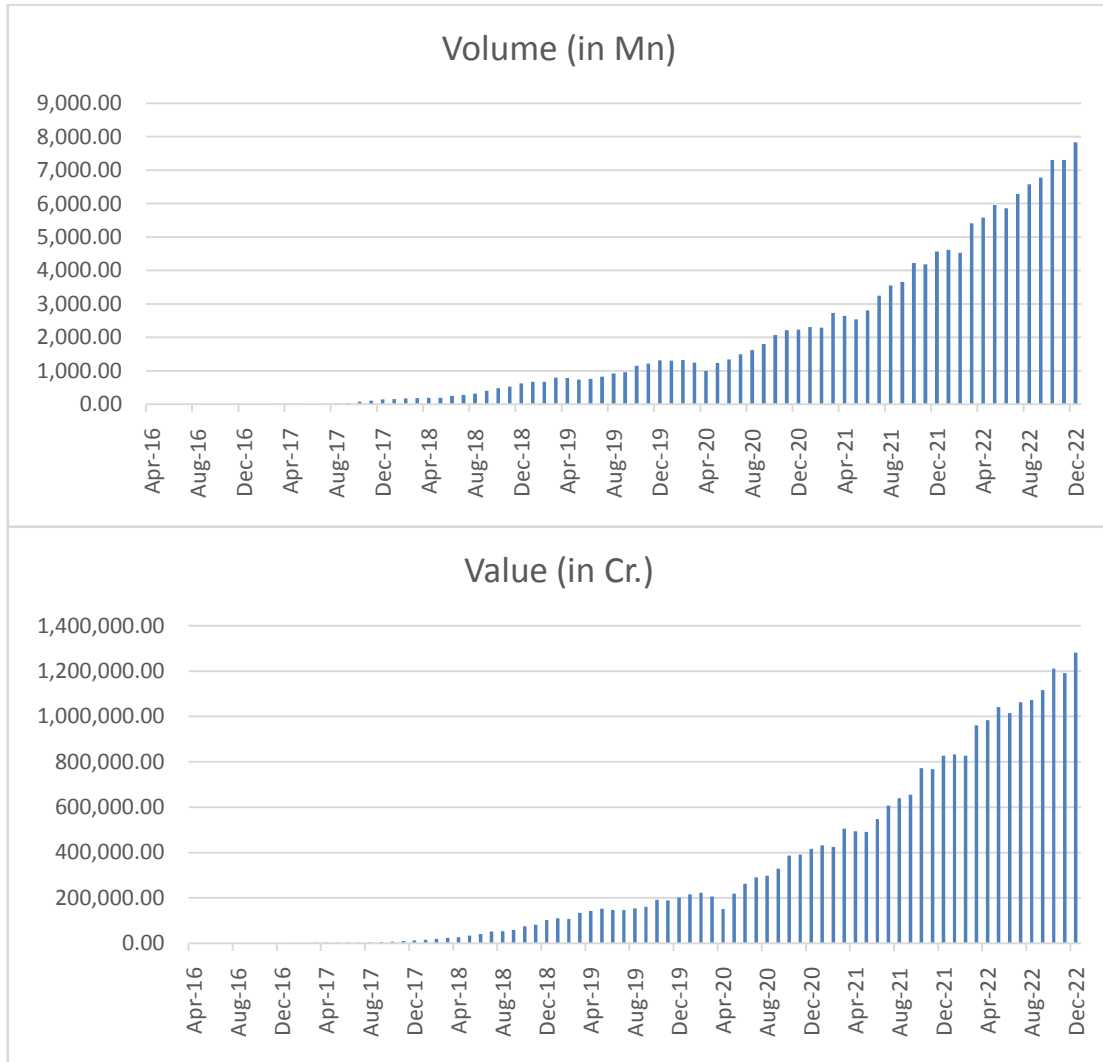
**P2P-** Transactions between two people, on a personal level.

**P2M-** Transactions between a person and a marchant, these are the type of transactions that we perform when buying or selling goods or services.

**Volume-** These are the number of Transactions performed over UPI.

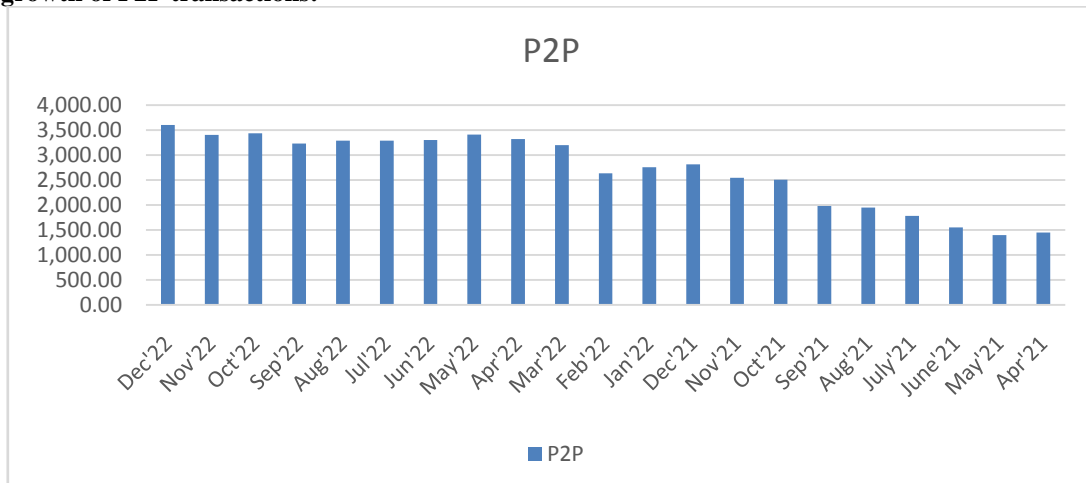
**Value-** This is the value of each transaction performed over UPI.

**The Overall Growth in UPI:**



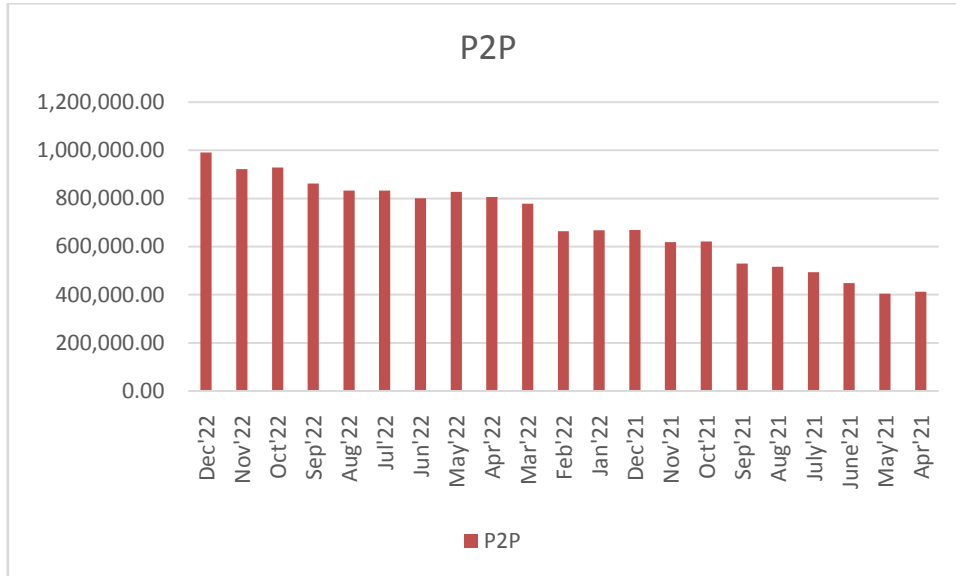
In both of the diagrams above, we can see that, there has been a steady growth in the usage of UPI in the Nation, both in case of, the number of Transactions and the value of Transactions.

**The growth of P2P transactions:**



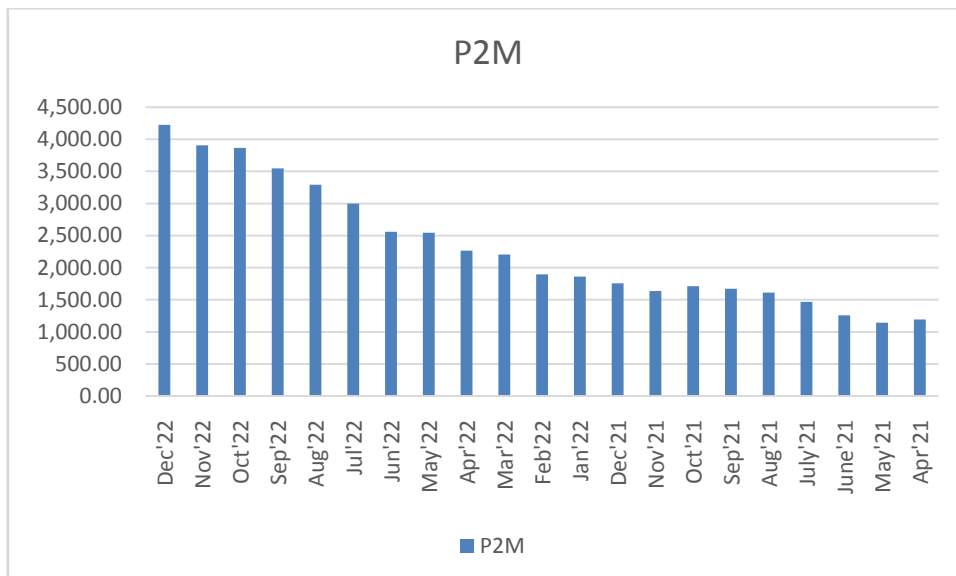
In the above chart we can see that, there have been a steep growth in the volume of transactions done over UPI, till Dec'21.

After which, there has been a slight decline, for three months i.e till Feb'22. There after, the growth of UPI has remained somewhat stagnant, till Dec'22.



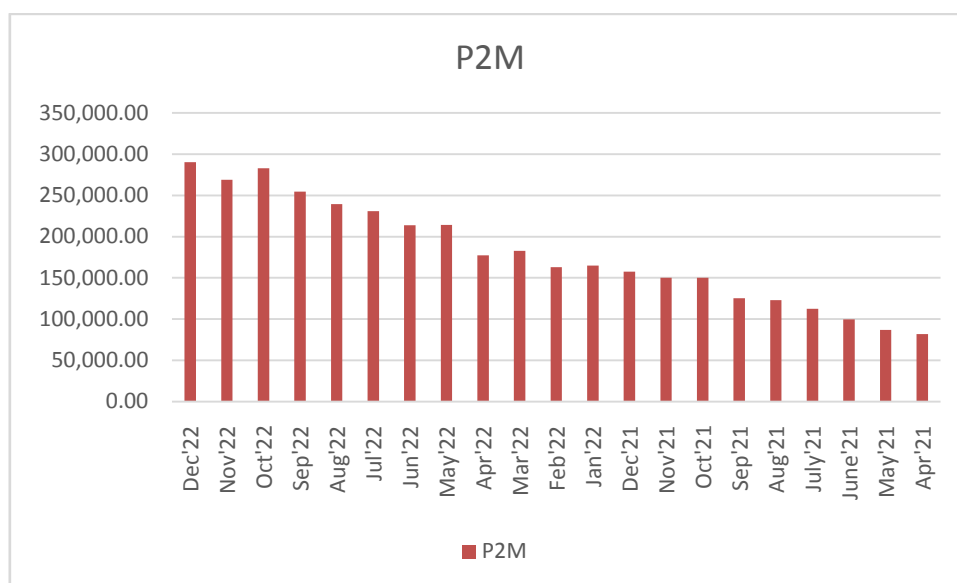
On the other hand, it can be seen in the above chart that the growth in the value of transactions, has been constantly increasing since Apr'21.

**The growth of P2M transactions:**



In the above chart we can see that there has been a steep growth in the Volume of P2M UPI transactions in India since Feb'22.

Before which the Growth of The volume of P2M UPI transactions in India, has been more stagnant in nature.



In the above chart we can see that the value of P2M transactions in UPI, has been constantly Growing Since Apr' 21.

#### Analysis and Discussion how different factors have led or effected the Growth of UPI:

- Knowledge and attitude Over UPI:** The increase in usage of UPI (Unified Payments Interface), there was a great influence in India by the knowledge and attitudes of its users. Awareness about the platform and its benefits among the public has led to increased adoption and usage of UPI for digital transactions. Positive attitudes towards using digital payments and the convenience and ease of using UPI have also contributed to its growth. On the other hand, lack of knowledge about UPI and concerns about security can lead to hesitation and slow adoption of the platform. Overall, a positive knowledge and attitude towards UPI has been a key driver of its growth in India. (Kamalaravanan, 2022) said People will need to have a better understanding of the technology if they want to use this system, which is true. A Feeling of complexity may arise on the subject, due to the lack of knowledge towards it. (Moghavvemi, 2020) also concluded, complexity to be a negetive factor. He also further added that cultural barriers are one of the main factors impacting the technology adoption and use.

Though Government of India have been taking steps, to increase the Knowledge and confidence towards UPI. (Kamal, 2021) said that people with less knowledge is also made protected

with confidence to make digital transaction by appealing in the advertisement from the RBI.

This lack of knowledge can be called as the biggest challenge towards mass adoption of UPI. (Baghla, 2018) Found out that, one of the biggest challenges in front of government is the lack of knowledge and awareness among people. The government needs to tackle this challenge to have a better cashless economy and to give a boost to digital payments to provide sustainable economic development to the country in the long run.

Talking about the rural India, (Neema, 2018) said Rural area consumers still lack knowledge about of this existing technology (UPI), the government should take steps, regarding spreading the knowledge of UPI, to rural India aswell.

- Better Infrastructure:**Infrastructure plays a vital role in the mass adoption of UPI (Unified Payments Interface) in India. A robust and efficient infrastructure can help to address several challenges that are currently hindering the widespread uptake of UPI. Firstly, improved infrastructure can ensure that UPI transactions are processed smoothly, quickly and securely, increasing the confidence of users in the platform. This is important as trust is a key factor in the adoption of any financial technology. With reliable infrastructure, users are more likely to switch from traditional payment methods to UPI. Secondly, expanding the infrastructure to remote and rural areas can make UPI accessible to a larger number of people, thereby driving adoption. By doing so, the government can help to bridge the digital



divide and ensure financial inclusion for all. Thirdly, upgrades to the infrastructure can lead to a more intuitive and user-friendly interface, encouraging wider usage. With a simpler and more streamlined experience, more people will be willing to adopt UPI as their preferred payment method. Fourthly, a robust infrastructure can provide better protection against fraud and cyber attacks, ensuring the safety of users' transactions and personal information. This is crucial as security concerns are a major barrier to the adoption of digital payments in India. Finally, integration of UPI with various other financial and non-financial services can make it a one-stop solution for all transactions, increasing its utility and appeal. This integration will help to provide a seamless experience for users and make UPI the default choice for all their transactions. In conclusion, better infrastructure is a crucial factor in the widespread adoption of UPI in India and can help to overcome the barriers to its uptake.

(Agarwal, 2020) said that, factors such as increasing penetration in the smartphone and internet users, Ease of accessibility, Convenience & security in conducting digital transactions have proven to be the building blocks for the promotion of mobile banking services in India.

Poor Connectivity, also happen to one of the major setbacks, in this domain. (Rasna, 2021) concluded that Poor Network Connectivity and Lack Of technical Knowledge, are some of the important factors that, impacted the Growth of UPI.

Accessibility to smart phones, also happen to be a Great factor, in this regard. This issue was also addressed by (Shailesh Rastogi, 2021), who finds that the major drivers which support the sustainability of the UPI platform are accessibility to the technology, convenience, cost effective and citizens voluntary exclusion in the financial inclusion.

(Kumar, 2022) in this regard concluded that, smartphone Penetration, Internet penetration, digital Literacy, Transaction Failures, Merchant's Infrastructure, were some of the major factors in the growth trends of UPI.

- **Security and Protection:**The importance of security and protection in the adoption of UPI cannot be overstated. As people increasingly rely on digital platforms for financial transactions, the risk of fraud and data breaches also increases. This can lead to a lack of trust among users, hindering the adoption of new financial technologies like UPI. However,

by implementing robust security measures, UPI can provide users with peace of mind and the assurance that their financial information and transactions are secure. This increased level of security will help establish trust among new users, and reduce the risk of fraud or data breaches. As a result, users will be more confident in using UPI, leading to wider adoption and increased usage of the platform. In this way, better security and protection measures can play a key role in driving the success and growth of UPI.(Sujith, 2017) found out that the risk to the online payments are theft of payments data, personal data and fraudulent rejection on the part of customers. Therefore, and until the use of electronic signatures is wide spread, we must use the technology available for the moment to guarantee a reasonable minimum level of security on the network. (Baghla, 2018) said that fear of loss of money by use of digital payment methods risk of hacking is very prevalent among people. The government needs to tackle these challenges to have cashless economy and to give a boost to digital payments to provide sustainable economic development to the country in the long run.(Neema, 2018) on these issues said that, Consumers focus majorly on Security issues i.e., in case if the mobile is stolen than its bank details & account are unlocked by anyone. Thus, some customers are not in support to install UPI apps in their phones.

To improve security on the Unified Payments Interface (UPI) in India, the government can take several measures. Firstly, it can promote awareness among users about the importance of keeping their mobile devices and UPI credentials secure. This can be done through campaigns and educational materials. Secondly, the government can ensure that the infrastructure and systems used for UPI transactions are regularly updated to address new security threats. This can be done through mandatory security audits and vulnerability assessments. Thirdly, the government can work with financial institutions and technology companies to implement advanced security measures such as multi-factor authentication and transaction monitoring. Fourthly, the government can establish a centralized reporting system for UPI users to report any suspicious or fraudulent activities. This will help the authorities to quickly identify and address security breaches. Finally, the government can provide adequate resources and support to law enforcement agencies to investigate and prosecute those involved in UPI-related crimes.

- **Convenience and ease:** To improve security on the Unified Payments Interface (UPI) in India, the government can take several measures. Firstly, it can promote awareness among users about the importance of keeping their mobile devices and UPI credentials secure. This can be done through campaigns and educational materials. Secondly, the government can ensure that the infrastructure and systems used for UPI transactions are regularly updated to address new security threats. This can be done through mandatory security audits and vulnerability assessments. Thirdly, the government can work with financial institutions and technology companies to implement advanced security measures such as multi-factor authentication and transaction monitoring. Fourthly, the government can establish a centralized reporting system for UPI users to report any suspicious or fraudulent activities. This will help the authorities to quickly identify and address security breaches. Finally, the government can provide adequate resources and support to law enforcement agencies to investigate and prosecute those involved in UPI-related crimes. (Rasna, 2021) said that, easy and fast Transaction, Secure and Cheap, Convenience, Prizes and reward Points, security Issues, are some of the important factors that, impacted the Growth of UPI. From the conclusions of (Arvind, 2021) it can be said, as mobile phones are the primary device to conduct UPI transactions, therefore, it creates a convenience for the people, as India is one of the largest consumers of smartphones, which happens to be a one stop device for all your payments.
- **Economy in the usage of UPI:** In India, the Unified Payments Interface (UPI) is a real-time payment system that makes interbank transactions easier by quickly moving money between two bank accounts on a mobile platform. The low cost of transactions on UPI has been a major factor in its increased usage. As UPI transactions are processed digitally, they incur lower costs compared to traditional methods such as cash or cheques. This makes UPI an affordable option for people to make routine payments, such as utility bills, mobile recharges, and even for purchasing goods and services. Additionally, UPI transactions are quick and convenient, as they can be initiated using a mobile phone and do not require

physical documentation. This combination of low cost and ease of use has made UPI a popular payment method, leading to increased usage and wider adoption in India. These factors have contributed to the growth and popularity of UPI, making it one of the most successful real-time payment systems in the world. Since, (Arvind, 2021) said that the level of consuming is also increased and low-cost service that it provides to their users is more-effective and the people feels easy to use this application also (Moghavvemi, 2020) concluded that the relative advantages and decreased payment processing fees are some of the factors that encourage merchants to adopt m-payment systems.

- **Advertisement and Promotion:** The Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI) have increased the usage of Unified Payments Interface (UPI) in India through various advertisements and promotions that educate the public about the convenience and benefits of using UPI for digital transactions. These promotions have highlighted the ease of use, instant transfer of funds, and 24/7 availability of the platform, which has encouraged more people to adopt UPI.

Additionally, the widespread use of smartphones in India has made it easier for individuals to access and use UPI. The government and the private sector have also promoted the use of UPI by offering incentives and discounts for UPI transactions, which has further increased its popularity. Overall, the combined efforts of RBI, NPCI, and other organizations have successfully driven the growth of UPI usage in India. (Kamal, 2021) said that many digital players are encouraging to go digital for the consumer by scanning the QR code to settle the payments which is better instead of swiping the e-cards, avoid infection and to withhold the loss in transaction and mentioned that people with less knowledge is also made protected with confidence to make digital transaction by appealing in the advertisement from the RBI. Hence forth, factors have contributed to the growth and popularity of UPI, making it one of the most successful real-time payment systems in the world.

- **Cashback and Discount:** Cashbacks and discounts have been a key factor in increasing the usage of Unified Payments Interface (UPI) in India. By offering financial incentives for using UPI, the government and private companies have encouraged more people to try

out the platform and adopt it as their preferred mode of digital payment. The cashbacks and discounts offered on UPI transactions make it an attractive option for people who want to save money while making digital transactions. This, in turn, has led to an increase in the volume of UPI transactions and overall usage of the platform. Furthermore, the widespread availability of UPI across various merchants and platforms has made it easier for people to use it for their daily transactions. Overall, the

combination of financial incentives and ease of use has led to the increased adoption of UPI in India. (Thomas, 2017) said that India holds enormous growth potential particularly in the field of mobile internet due to high population and increasing penetration of internet into rural population. These factors have contributed to the growth and popularity of UPI, making it one of the most successful real-time payment systems in the world.

#### IV. FINDINGS:

Broder catagories	Factors	Authors
Knowledge And Attitude On UPI	Better Understanding Of The Technology	(Kamalaravanan, 2022)
	Complexity	(Moghavvemi, 2020)
	Cultural Barriers	(Moghavvemi, 2020)
	Less Knowledge	(Kamal, 2021)
	Lack Of Knowledge and Awareness	(Baghla, 2018)
	Digital Literacy	(Kumar, 2022)
	Lack Of Technical Knowledge	(Rasna, 2021)
	Rural Area Consumers Are Still Not Aware of This Existing Technology (UPI)	(Neema, 2018)
	Citizens Voluntary Exclusion in The Financial Inclusion	(Rastogi, 2021)
	Awareness	(Kamalaravanan, 2022)
	Education	(ESWARAN, 2019)
	Education Level	(Pan., 2019)
	Financial Literacy	(Tikyani, 2022)
	Infrastructure	Universal Access to Banking
Increasing Penetration in The Smartphone		(Agarwal, 2020)
Technological Incompatibility.		(Moghavvemi, 2020)
Convenience		(Agarwal, 2020)
Accessibility To the Technology		(Rastogi, 2021)
Smartphone Penetration		(Kumar, 2022)
Merchant's Infrastructure		(Kumar, 2022)
Internet Penetration		(Kumar, 2022)
Poor Network Connectivity	(Rasna, 2021)	

	Mobile Internet	(Thomas, 2017)
	UPI Makes the Mobile Phones as The Primary Device	(Arvind, 2021)
	Ease Of Accessibility	(Agarwal, 2020)
	Enormous Growth in Smart Phone Users	(Kakade1, 2017)
	No Separate Customer Care Line	(Kakade1, 2017)
	Digital Literacy Is Too Less	(Kakade1, 2017)
	Growth In the Number of Smartphones In The Country	(Mahapatra, 2022)
	Adoption By the Merchants	(Mahapatra, 2022)
	Fast Growing Smart Phone Penetration	(Sarkar, 2019)
	Growth Of Non-Banking Payment Institutions	(Sarkar, 2019)
	Quality System and Process Of UPI	(Fahad, 2022)
	Usage Of Smartphones and The Internet in Rural Services Has Increased Significantly	(Sahoo, 2022)
	24/7 Support	(Ajmera, 2020)
	Access To Internet	(Pan., 2019)
<b>Security</b>	Risk	(Kamalaravanan, 2022)
	Security In Conducting Digital	(Agarwal, 2020)
	Theft Of Personal Data	(Sujith, 2017)
	Fraudulent Rejection	(Sujith, 2017)
	Fear Of Loss of Money	(Baghla, 2018)
	Cyber Frauds	(Abhishek Kumar, 2022)
	Security Issues	(Rasna, 2021)
	Consumers Focus Majorly on Security Issues	(Neema, 2018)
	Strengthening Internet Security from Protection Against Online Fraud and Cyber Fraud.	(Sarika, 2019)
	Security And Privacy Concern	(Khanra, 2020)
	Theft Of Payments Data	(Sujith, 2017)
	Safety, Security, Authorization.	(Ajmera, 2020)
	Various Cybercrimes	(Tiwari, 2019)
<b>Economy In Usage</b>	Decreased Payment Processing Fees	(Moghavvemi, 2020)
	The Costs of Implementation	(Moghavvemi, 2020)
	Low-Cost Service	(Arvind, 2021)
	Cost Effective	(Rastogi, 2021)

<b>Advertisements And Government Policies</b>	Advertisement From the Rbi	(Kamal, 2021)
	Government Taking Initiative	(Neema, 2018)
	Policies Of the Government Regarding Financial Inclusion	(Tikyani, 2022)
	Government Initiative on Digital India	(Sarika, 2019)
<b>Convenience</b>	Convenience	(Agarwal, 2020)
	Easy And Fast Transaction	(Rasna, 2021)
	Secure And Cheap	(Rasna, 2021)
	Convenience	(Rasna, 2021)
	Convenience Of Usage	(Mahapatra, 2022)
	Simplicity To Use	(Sarkar, 2019)
	Payment Anywhere and Anytime 24*7	(Sarkar, 2019)
	Satisfaction Of the Existing User	(Fahad, 2022)
	Ease And Comfort of Consumer	(Indoria, 2021)
	Easy To Use	(Arvind, 2021)
	Less Time Consuming	(Franciska, 2017)
	Contactless Payment, Convenience, And Ease of Pay.	(George, 2021)
<b>Cashbacks And Discount</b>	Cashbacks And Discount	(Thomas, 2017)
	Prizes And Reward Points	(Thomas, 2017)
	Cashbacks Can Also Be a Positively Effecting Factor	(Indoria, 2021)

The most pressing factor that we found, was **Infrastructure**. this can be solved by providing more stable internet, increased penetration of Smartphones in Rural Areas, and more merchants accepting UPI as a payment method.

**Security, knowledge and attitude towards UPI** can be concluded as the 2<sup>nd</sup> most pressing factors that are affecting its growth of it. The problems that arise out of these factors can be solved by making people more aware of the uses of UPI, Instructions to use it, and the security, that comes with it.

It was identified that, **Convenience and easy of use** has been the third most pressing factor leading to the growth of UPI. Many of the authors say that the convenience that UPI provides, has been one of the leading factors in its growth of it.

The fact, that UPI provides **no-cost transactions**, has supported its growth, but this factor has been identified by not many of the authors.

**Cash backs and promotions** were the factors that were least quoted by the authors.

#### Limitations of this study

The present study utilized a secondary data approach to investigate the growth of UPI. Specifically, the authors conducted a comprehensive review of 36 research papers authored by reputable scholars. Based on the analysis of the reviewed literature, the authors have identified several factors that have influenced the growth of UPI. The authors have drawn insightful conclusions from this process.

While the authors have made a significant contribution to the literature by identifying crucial factors that affect UPI's growth, it should be noted that this topic remains extensive and multifaceted. Indeed, there may be additional influential factors that the current research did not address within its literature review scope. Further research in this area is warranted to provide a more comprehensive

understanding of the complex factors that impact the growth of UPI.

#### Scope of further research:

- The Authors found out, while doing the Analysis of the Growth of UPI, that when the Growth of the volume of P2M transactions was high the growth in the volume of P2P transactions was stagnant and Vice-versa. They didn't go for any further research to find out if there is any particular reason for this being so.

This makes a scope of further research being conducted, to find out If there is any relation between the Growth in the volume of P2P and P2M transactions.

- The Authors noted that there has been a constant growth in the value of transactions conducted over UPI, both in the case of P2P and P2M transactions. This might be because of the increasing trust of People in UPI. It might be that people are becoming less sceptical over UPI, day by day, as this service is becoming more and more popular.

The authors didn't go for any further study on this and can be taken as a separate research topic in the future.

- This research that is conducted is time sensitive, the Authors were working on data figures ranging from the year 2016 to 2022. It might be the case that in future, a new factor can come up, that will effectively lead to the growth.

Therefore, the Methodology used in this research can be used by other researchers in future, to further come up with new factors then.

#### V. CONCLUSION:

The authors doing this research, have found out that, **Infrastructure relating to UPI**, is one of the most pressing factors, that is hindering its growth in India. Infrastructure refers to the physical and digital systems that are essential for the smooth functioning of the economy, such as roads, bridges, power grids, and telecommunications networks. In the case of UPI, digital infrastructure is particularly important. For example, high-speed internet connectivity and reliable mobile networks are essential for users to access the UPI platform and carry out transactions quickly and efficiently. In addition, digital payment systems rely on secure and reliable servers to process transactions and store user data.

To address these challenges, the Indian government and private sector organizations are working to improve the country's digital

infrastructure. For example, the government's Digital India initiative aims to provide broadband internet access to all citizens, while private sector companies are investing in technologies like 5G networks and blockchain to improve the speed and security of digital transactions.

The authors further found out that, **Security, knowledge and attitude towards UPI**, are the 2nd most pressing factors that are affecting its growth of it. The security of data is critical to the growth of UPI in India. As UPI transactions involve sensitive financial information, any security breach can lead to significant financial losses for users and erode trust in the platform. Data breaches can also result in regulatory fines and damage to the reputation of UPI service providers. Therefore, it is essential to ensure that the UPI platform has robust security measures in place to protect user data. Additionally, ensuring that users are aware of safe practices while using UPI can also help to prevent security breaches. By prioritizing data security, UPI service providers can build trust among users and encourage more people to adopt digital payments, ultimately driving the growth of UPI in India.

On the other hand, Awareness of the platform and its benefits among the public can lead to increased adoption and usage of UPI for digital transactions.

The third most pressing Factors in the growth of UPI is **Convenience and ease of use**. UPI has been designed to be user-friendly and easy to use, making it accessible to people from all walks of life. The simple interface and easy-to-understand instructions have made it a popular payment system among both urban and rural populations. This ease of use has played a crucial role in increasing UPI adoption and usage in the nation.

It was also found that that, **No cost Transactions**, have also promoted the growth of UPI, in the Nation. No-cost transactions are transactions that do not incur any additional fees for the user, beyond what is charged by their bank for the transaction. These types of transactions can help to drive the growth of UPI in India by making digital payments more accessible and affordable for users. By eliminating additional transaction fees, UPI service providers can encourage more people to adopt digital payments, particularly in rural areas and among low-income households. No-cost transactions can also help to build trust among users, as they provide a transparent and predictable fee structure for digital payments. Overall, by offering no-cost transactions, UPI service providers can increase the adoption of digital payments,

which can drive the growth of UPI in India and promote financial inclusion.

Further **Promotions and app-based cashback** have also promoted the Growth of UPI in the Nation. Though the Authors found that these were among the less significant factors.

Promotions have been a key driver in promoting UPI usage, with various companies offering discounts and cashback for transactions made through UPI. This has incentivized users to adopt UPI and use it for their daily transactions, thereby increasing its usage and popularity.

Cashbacks have also been a significant driver of UPI adoption, with various platforms offering cashback for transactions made through UPI. This has incentivized users to use UPI for a range of transactions, including bill payments, mobile recharges, and online purchases, thereby driving the growth of UPI in the nation.

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