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## Original Research Article

## A study on digital payment applications in India

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## ABSTRACT

This Research Paper is based on the in-depth study of applications that deals with Unified Payment Interface (UPI) in India. It shows how the dynamics are changing in the UPI sector and which companies are leading the table. The study was conducted in Pune Region and the survey was done with the help of questionnaire. A response of 82 respondents has been collected and then accordingly a conclusion is made. The Data for the study was also conducted from secondary sources which eventually helped us to get a fair understanding of the Industry. In today's world one word is common that is "Digitalisation" and it is also gaining popularity due to increase in use of Smartphone by the people, the same has applied to the financial sector. In India, the Unified Payment Interface (UPI) was launched in the year 2016 by National Payments Corporation of India (NPCI). UPI is a payment server which allows its users to transfer the money on real-time basis from Peer-to-Peer (P2P) or from Person-to-Merchant (P2M). It is an application that allows the users to use multiple bank accounts in single application. UPI has become so popular in India, also around world due to its ease of use, security, real-time alerts, etc. In India, UPI is currently in a growth stage and showing a robust growth year-on-year. In this research we will have an in-depth study on 5 major UPI apps in India namely GooglePay, PhonePe, Amazon Pay, Paytm and BHIM.

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## 1. Introduction

India with the population of over 135 crores, is a huge market for digital payment applications. According to the recent data, TRAI India has almost 114 crores telephone subscribers, 76.58 crores internet users and about 75 crores smartphone users. These numbers are not only standing here but has shown an exponential growth on quarterly as well as yearly basis. India with such a huge population is ranked first in terms of value of transactions through UPI, which is almost 3 times than second one china. The NPCI came into operation in 2008, with sole objective to develop infrastructure in digital payment industry.

## 1.1. What is UPI?

UPI is a system that provides the real time transfer of money from one user to another user. It allows us to transform transfer money between individuals, merchants or anyone who accepts it. The RBI is the regulatory body for digital payments. UPI has been launched on 11<sup>th</sup> April 2016, and has its presence in countries like India, Bhutan, Nepal, Malaysia, Singapore and UAE. As per February Data 2022 there are 304 Banks that are active on UPI Portal. The Major features are as follows:

1. The amount can be transferred immediately just by scanning QR code.
2. One UPI can give access multiple bank accounts.
3. It helps us to create Virtual Payment Address and Thus helps us to not share our bank details with any one.
4. It has s two-factor authentication.

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### 1.2. Trends in UPI industry

India has shown a good development in recent decades and currently as of today GDP of \$2.62 trillion and expected to reach \$5 trillion by 2026. In India, the fintech industry has more adoption rate than any other in the world that is 87% as per MOCI. UPI is the one of major and attractive part in fintech industry and hence make it an attractive investment option. At the time, when UPI was started the number of Banks live on UPI was just 21, as the industry gained its presence it has 323 Banks live on its portal and shown a CAGR of around 70%. Along with number of banks the one thing that grew almost at same pace was user Base of UPI. Indian UPI transaction crossed \$133 billion as of May 2022, Data by NPCI versus 0.10 million when it was launched. The graph below shows the market share of major UPI apps, volume of transactions, Value of transactions and No. of Banks live over the years.<sup>1,2</sup>

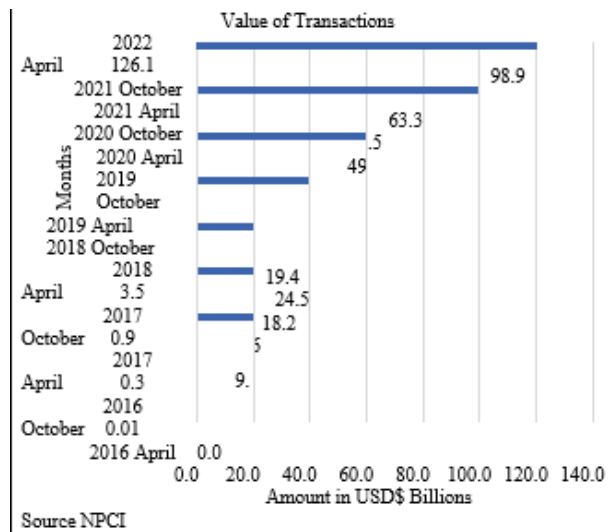


Fig. 3: Value of transaction

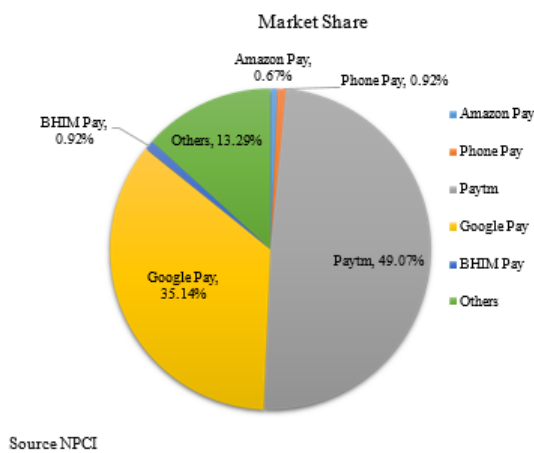


Fig. 1: Market share

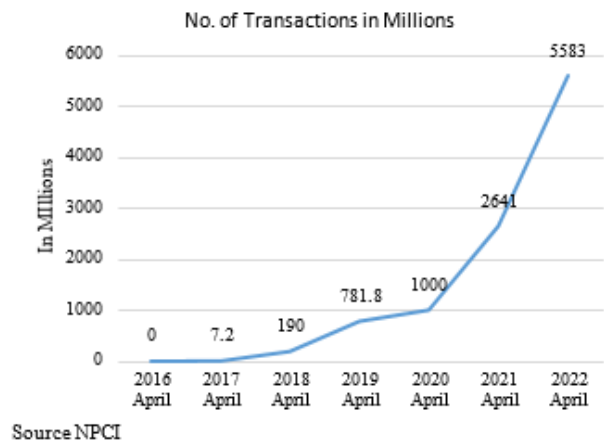


Fig. 4: No of transaction in millions

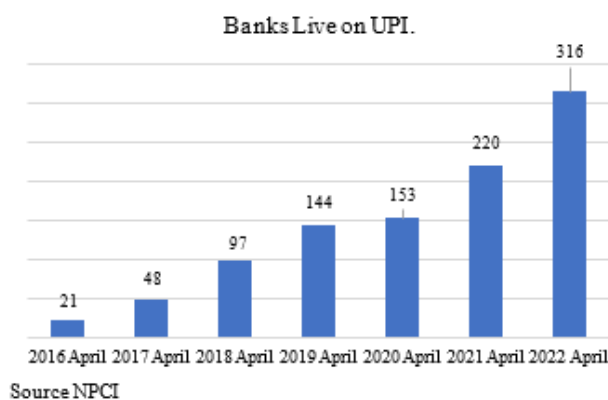


Fig. 2: Banks live on UPI

With this data we can infer that use of UPI may increase in near future. As per data, the expected value of transactions through UPI is \$169 billion. Indian Government is also trying to push the UPI make the economy cashless. They have launched various programmes such as digidhan, di initiative in order to promote payments.

#### Process of UPI

1. The user has to first download and register on it.
2. Once the login they have to register with the Bank Details.
3. Set M-pin for transactions.
4. Ready to go.

### 2. Review of Literature

1. Karamjeet Kaur, Dr. Ashutosh Pathak (2015), in their research paper entitled “E-payment system on E-

commerce in India” they found that for becoming a successful company in a digital payment industry it majorly depends on the factors like easiness to use, app interface, preferences, viability, accessibility, services and cost.

2. Zlatko Bezhovski (2016), in their research paper entitled “The Future of Mobile Payments as Electronic Payment System” the study found that the customers using the digital payment applications will go on increasing continuously due to its various benefits and also smartphones becoming the core element of human beings life and stating that the digital payment industry has positive future ahead.
3. Prof Trilok Nath Shukla (2016), in their research paper entitled “Mobile Wallet: Present and the Future” found that in future digital payments will have a major contribution in shopping experience of customers. Giving only security and easy to use payment system will not be enough to attract customers apart from this will require to give cashbacks, loyalty programs, etc. The marketers should grab this opportunity by partnering with various digital payment companies to attract to customers.
4. Rahul Gochhwal (2017), in their research paper entitled “Unified Payment Interface-An Advancement in Payment Systems” they found that even the smallest retailer or merchant in future will be able to accept payment and also reduce their cost of intermediaries while carrying out transactions. The UPI will not only provide secure mode of payment but will also help in developing the technology ahead.
5. James Joseph, K.V. Shriram, Lawlyn L.R. Rodrigues, Ashish Oommen Mathew and K.C. Gana (2018), in their research paper entitled "An Empirical Study on Consumer Adoption of Mobile Application in India" they found that easiness of use, services, pervasiveness, cashbacks were major to attract customers, also mobile payments were popular in urban but awareness is needed to spread it in rural areas of country and they also found that older people find it difficult to use digital payment applications.
6. Priyanka. S. Kotecha (2018), their research paper entitled “An Empirical Study of Mobile Wallets in India” they found that digital payments are main mode of transactions for most of the merchants due to ease of use and convenience and there will be tremendous growth in future of digital payments.

### 3. Research Methodology

Research Methodology is used to solve a problem in a systematic manner and find optimal solution, it is a base for every research done. It helps to understand how the research is conducted, how information is collected, how to present

it and how to conclude it.

### 4. Data Collection Method

Data for the study was collected from primary as well as secondary method.

#### 4.1. Primary sources of data collection

The data for this research was collected through Structured Questionnaire which was asked to the respondents. The questionnaire was prepared with google forms.

#### 4.2. Secondary sources of data collection

When data is collected from other sources which has been published or released earlier is known as secondary data. Secondary Data helps the researcher to have a better knowledge of the topic and to interpret more accurately. The secondary sources of data for this research was Government websites, Newspapers, Magazines, Other Published Journals, Reports by various companies, etc.

#### 4.3. Objectives of the study

1. To study the importance of digital payment applications in e commerce.
2. To study the user’s perception about digital payment applications.
3. To study the opportunities and challenges for digital payment applications.

### 5. Data Analysis

The collected data was analysed with the help of Ms-Excel and was represented in pie-chart and tabular format. The research problem is found out with the help of data analysis. The Data analysis has two parts one is the comparison of top 5 UPI apps on the basis of market share and other one is about the survey. The total Respondents was 82 for primary data.<sup>3-5</sup>

### 6. Secondary Data Analysis

#### 6.1. Phone Pe

PhonePe is a payment application which is used for UPI transactions. Sameer and Rahul who are the founders of PhonePe launched this payment application in 2015. PhonePe can be used in 11 spoken languages in all over India. Mutual funds, Digital Gold, Insurance, etc are the services also provided by PhonePe. One more feature is using this application you can also withdraw money from the PhonePe merchants. PhonePe is successful enough to acquire 50% share, which has 350 million registered users and 20 million overall merchant users.<sup>6</sup>

Market Share of PhonePe

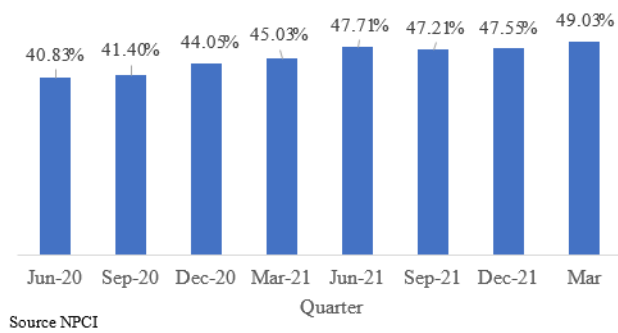


Fig. 5: Market share of PhonePe

### 6.2. Google pay

Tez pay which is widely known as Google Pay has been developed by one of the biggest company Google Inc was developed in 2017. 42 countries already adopted Google Pay and its global reach is increasing day-by-day. 9 languages are available to use in this application. Google Pay has tied up with ICICI bank to provide loan and to earn on the interest charged. “Toggle” is the feature which is only provided by Google which keeps your transaction history safe even from Google itself. Google Pay with 36% market share is the leader following PhonePe. 220 million are registered and 10 million merchants prefer Google Pay.

Market Share of Google Pay

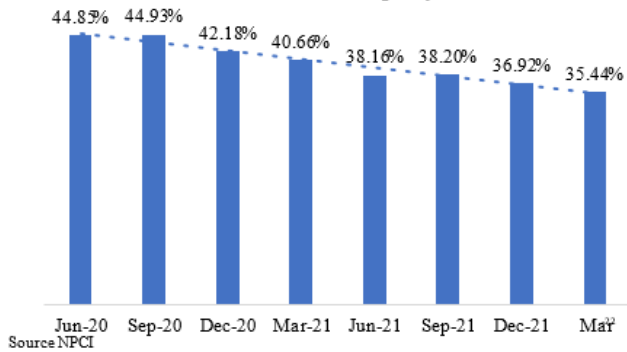


Fig. 6: Market share of GooglePay

### 6.3. Paytm

One97 communication the parent company of Paytm found by Mr. Vijay Sharma in 2010. Digital products like wallet, mobile payment, online shopping, Paytm sound box, etc were introduced in 2014 and marked their presence. In 2015 Paytm launched its own bank after getting license from RBI. 350 million users are registered on Paytm which is the highest among the others and around 60 million bank

customers. They recently started Paytm Postpaid which gives service similar to credit card. Paytm earns its revenue through loan they provide and various other services.

Market Share of Paytm

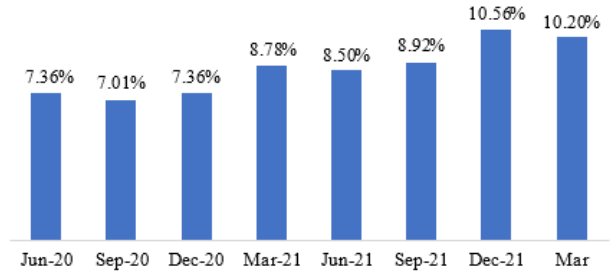


Fig. 7: Market share of Paytm

Market Share of Bhim

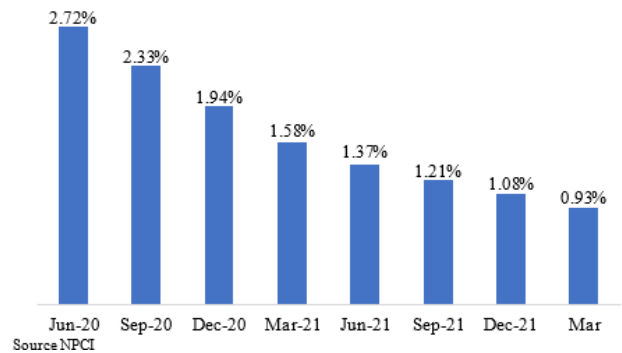


Fig. 8: Market share of bhim

Market Share of AmazonPay

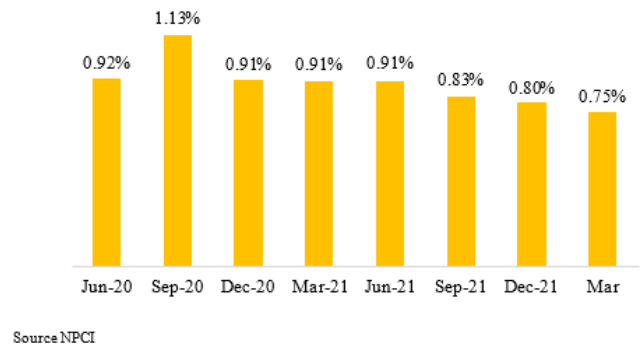


Fig. 9: Market share of AmazonPay

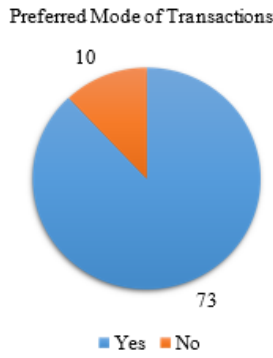


Fig. 10: Could you prefer cash or UPI for daily transactions?

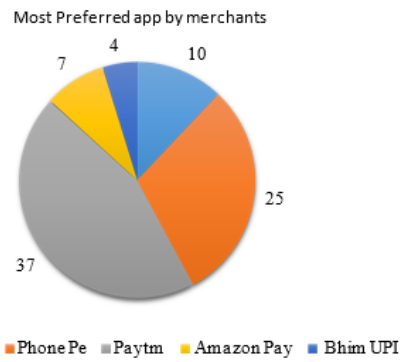


Fig. 13: Which application does the merchants prefer most?

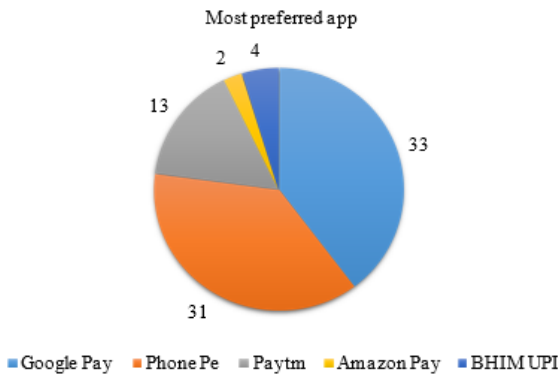


Fig. 11: Which UPI application do you prefer most?

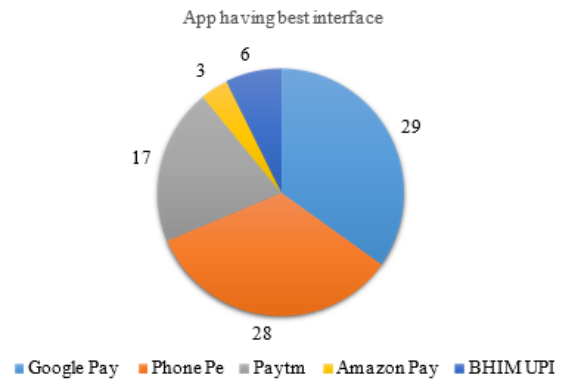


Fig. 14: Which app has the best interface?

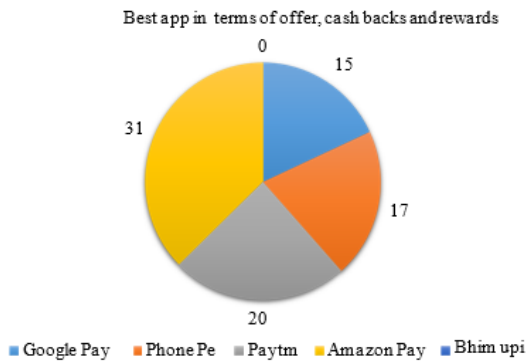


Fig. 12: Which payment application is the best when it comes to offers, rewards and cashbacks?

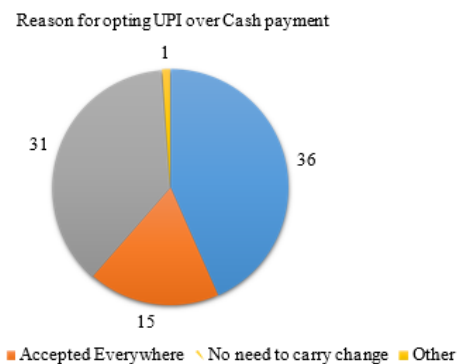


Fig. 15: Why would you adopt online payment option over physical payments?

7. Primary data analysis

7.1. BHIM UPI

Bharat interface for money that BHIM is developed by the regulator itself that is NPCI fully focused on UPI transaction. It made its presence in December 2016 with 12.5 million users registered till date 2017. The application can be used in 20 different languages which allows most of the Indians to use it but it is losing its market share to

other payment application. As they are losing their grip in the market they should consider using different marketing strategies to grow.

7.2. Amazon pay

Amazon pay was introduced by E-commerce company that is Amazon. It has its presence only in 18 countries. 50 million are registered on amazon Pay from India, but it is

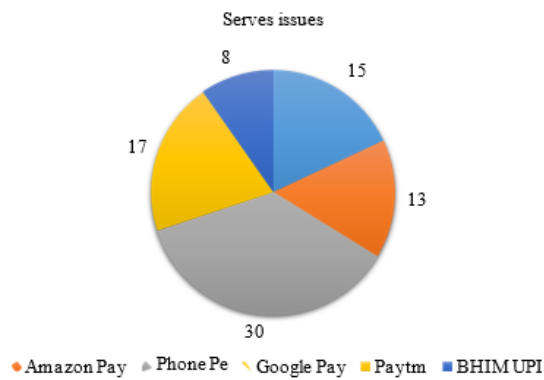


Fig. 16: Which Application has the frequent server issues, according to you?

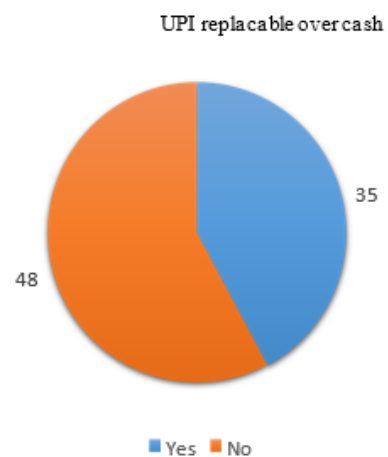


Fig. 19: Is UPI capable of replacing cash thoroughly?

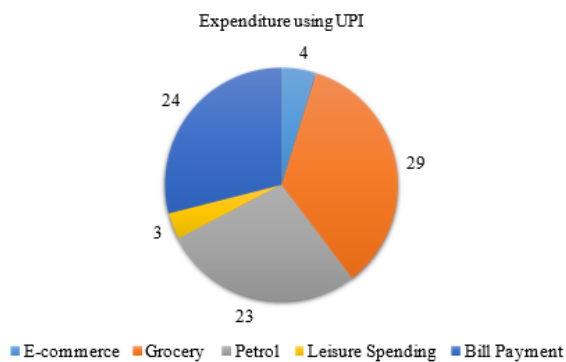


Fig. 17: Where do you spend most through UPI Applications?

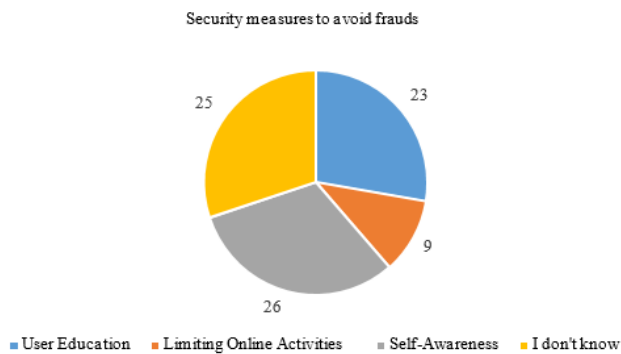


Fig. 18: What are the different security measures will you take to avoid any kind of UPI frauds?

losing its market share compared to others.

They give good cashbacks and also offer multiple offers but their strategy doesn't seem to work. They also earn their revenue through interest on loan they give and also through Amazon pay later. Amazon pay interface is complicated to use, improving it or making it simple will help them grow.

### 8. Findings

1. Most of the people prefer UPI over cash out of 83 people 73 prefer UPI and only 10 prefer cash. Paying online is more simpler than carrying cash everywhere.
2. Google Pay 33 followed by PhonePe 31 were the most preferred applications.
3. Amazon pay is the application which offers most of the cashbacks and offers.
4. Merchants prefer Paytm as they offer sound box with the QR. This way they can keep track of their income.
5. Google pay and PhonePe has the best user interface according to the respondents, easy to use interface is mostly preferred.
6. Respondents prefer online payment over cash because its easy to carry a smart phone than cash, as we can lose the cash.
7. Google pay was the application with most server issues compared to other applications.
8. Respondents spend most of their money through UPI on grocery, petrol and bill payments.
9. Self-awareness, User Education and most of the respondents don't know how they will protect themselves from UPI frauds.
10. Respondents believe that UPI payments cannot truly replace cash.
11. Government is trying to push UPI applications for cash-less economy.
12. PhonePe is gaining market share from Google Pay, Bhim UPI and Amzon Pay.
13. Google Pay is losing Market share to Paytm and PhonePe.
14. Google Pay has more server issues compared to other applications according to study.
15. BHIM and Amazon Pay are losing their grip in market
16. The majority of customers were increased during the lockdown period.

17. Users have trust issues on basis of confidentiality
18. Users use multiple UPI applications for getting cashbacks, rewards and offers.

## 9. Conclusion

In the todays world one word is common that is “Digitalistaion” similar has been applied on Payment Industry Which has been continuously converting in to digital and is growing rapidly year-on-year. The study was majorly focused on the “Strategic analysis of UPI applications in India”. The study revealed that the user base of UPI apps is increasing due to various benefits such as ease of use, twofactor authentication, no need to carry change was major benefit for the users. The study includes an in-depth study of five major UPI applications that are used in India that is PhonePe, Google pay, Amazon Pay, BHIM UPI and Paytm on the basis of their features, market share and ease to use. The Indian digital payment system is continuously on an uptrend and is expected to remain in uptrend in future due to various benefits. On the basis of market share PhonePe is continuously gaining and has maintained top position followed by Google Pay, Paytm, Amazon Pay and BHIM UPI. The UPI apps took an upward swing during demonetisation and then due to covid lockdown as people were avoiding physical transactions of paper money which lead to exponential growth of industry. A survey was done with a questionnaire where we had 83 respondents. As per our study we concluded that most of the people preferred Online Payments over Cash because carrying cash we also carry the risk of losing it. Our study indicates that UPI has a great future in long term on the basis of respondents.

## 10. Source of Funding

None.

## 11. Conflict of Interest

None.

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