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# Study of Growing Popularity of Payment Apps in India

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## Abstract:

The use of E-payment system is increasing at a very fast rate. Day by day the numbers of users are moving towards online payment systems instead of using plastic money like cash etc. Making online transactions is very convenient and time saving. People can pay online not only for shopping but also for different purposes as many different apps are available that offers many services to the users. This paper studies the reasons of increasing popularity and use of payment apps by the people of India for making payments online and the continuous growth of these payment apps in India. The authors of this paper analysed three most popular payment Apps used in India namely, Google Pay, PhonePe and Paytm.

**Keywords:** E-payment, Digital payment, Unified Payment Interface, Payment Apps.

## 1. INTRODUCTION

Digital payment refers to paying for goods and services online with the help of electronic mediums. This is called as cashless economy which avoids use of money in physical form. These digital transactions help to reduce the cost of making transactions and also speedup the process involving one transaction cycle. It reduces the risk of handling cash. The record of digital payment can also be maintained easily. Digital transactions also help government as transactions can be tracked easily which will help to reduce black money and thus help in growth of economy. The government is taking initiatives to move the country towards a less-cash economy and increase the use of digital transactions. The main motto of the Indian government is to make the Indian economy 'Cashless, Faceless, Paperless'. The different apps are available that allow users to make payments online. These are very convenient to use and provides flexibility to the users as they allow users to make payments anytime and from anywhere. Some of the apps used for online payments are: Phone Pe, Google Pay and Paytm

PhonePe is a digital wallet company with its headquarters in Bangalore and is the first app built on Unified Payment Interface. It is a UPI based app that allows users to make transactions using PhonePe wallet, credit/debit card or UPI. This app allows to pay utility bills, do recharges and transfer money.

Paytm has its headquarters in Noida, UP. It is available in 11 languages. One extra feature added in this app is that the users can receive cashback in the form of gold. Paytm also provides banking facility in the form of Paytm Payment Bank in which an account can be opened without any charges. A user can deposit an amount of 1 lakh in this account and an interest of 3.5% can also be earned on that amount [1]. It provides the facility to scan any QR code using Paytm app for making payments.

Google Pay allows transactions using UPI only. There is no wallet facility and the app is directly linked to the bank account. A user can also earn Rs. 51 by inviting a friend and making him do any transactions using your reference link [2]. Also, the first transaction using this app provides user with some amount of scratch cards.

## 2. LITERATURE REVIEW

A lot of studies have been conducted on the payment apps and methods worldwide. Some of these studies have been reviewed as follows:

S. Khan [3] did a survey in which 100 people participated. This was done to know about the reasons that are attracting consumers to buy products online and which type of goods or services are purchased more by the consumers and which payment gateway is used more by the people for making online payments. It was concluded that more security features need to be added like biometric verification with the help of fingerprint or retina scan, Artificial intelligence etc. This will increase confidence and trust of more and more consumers in this industry.

Vidya S. [4] compared digital wallets on the basis of payment support, cashback and rewards. It was concluded that BHIM app helps a user to make a transaction without having an internet connection. PhonePe and Paytm provide wallet facility with many other functions. Google Tez is a secure app to make nearby quick payments.

Liébana-Cabanillas [5] discussed about the importance of mobile payment and the use of Internet/WAP as a payment system.

Gokhan Aydin [6] discussed the importance of mobile wallets and also some factors that had a positive effect on the users in using these wallets. Some of these factors are perceived ease of use, compatibility, usefulness etc. It was concluded that the easy usage of mobile wallets is the most important factor that affects users' attitude. So, this factor must be focused on in order to increase the use of mobile wallet system and its adoption among non users.

S. Singh [7] discussed about the digital payment modes in India. The main focus was on the customer perception and the factor that put a great impact on the adoption of digital payment system. It was found that the adoption of digital payment system is mostly affected by the education level of the customer. If the education of a person is higher, he will know the

benefits of this system and its usage will be higher. But some other factors like age, gender, annual income do not put affect the use of digital payment system.

ZlatkoBezhovski [8] discussed about different online payment methods and the adoption of electronic and mobile payment systems by the consumer. It was concluded that the future of this payment system can be secured by using latest technology like use of radio bar-codes with the help of which radio signals could be sent out to find out the location of the products. The various factors were also discussed that put positive and negative effect on the adoption of this payment system. The main concerning factor was found to be the risk of security, data theft, fraud etc. that need to be taken care of in order to increase the usage of mobile payment methods.

P. Sarika [9] discussed about the digital payment systems in India that promotes cashless transactions and also the growth of customers using these methods was shown with the help of graph. It was concluded that demonetization helped in increasing the use of digital payment systems a lot as a large no. Of users started using digital methods of making payments instead of using plastic money. Also, the major issue of concern mentioned was security so, more security features need to be added in order to gain trust of customers and for the growth of this system.

SanchiMeena [10] did a comparative study on different mobile wallet applications used in different countries like France (KWIXO, LYDIA, S-Money, Orange Cash), U.S.( Google Wallet, VENMO, Pay With Square, Samsung Pay, Cash By Optus), Sweden(SWISH, SWEDBANK, SEB, SEQR, WyWallet) etc. and concluded that for windows phone less number of mobile wallets were available. It was also found that the apps which do not charge any fees for making transactions were highly preferred by the users and also the apps which are easy to use.

## 3. ANALYSIS

After having given the introduction and previous work on payment apps, in this section, an analysis of three most popular Payment apps is presented [11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23]. The parameters that have been identified for analysis are shown in Table 1. These parameters can act as a measure of effectiveness for any Payment app. In the study, we show how each single parameter is crucial in determining the effectiveness and use of Payment apps by the people.

Table 1. Parameter List

1. Share in Number of Transactions (Total and UPI)
2. Market share
3. Losses/Profits made
4. User Base
5. Wallet Facility
6. Cashback and Rewards
7. Security
8. KYC Compliance
9. Own Bank Facility
10. Languages Supported

Table 2. shows the comparative analysis done by the authors of this paper. In the following, the results of analysis are discussed point wise.

### 3.1 Share in Number of Transactions (Total and UPI)

#### a) Total Number of Transactions

The growth in total transactions (all types of transactions) of these apps in July 2018 and in July 2019 [11] is shown with the help of Fig. 1.

From the Fig.1, it is clear that Paytm is leading when all types of transactions are considered including payments through Paytm wallet, net banking, cards and UPI as Paytm has 335 million transactions in July, 2018 and approximately, 700 million transactions in July, 2019.

This growth is more than 100% in a year. The PhonePe has approximately, 111 million transactions in July, 2018 and approximately, 335 million transactions in July, 2019. This growth is more than

300% in a year. The Google Pay has approximately, 100 million transactions in July, 2018 and approximately, 300 million transactions in July, 2019.

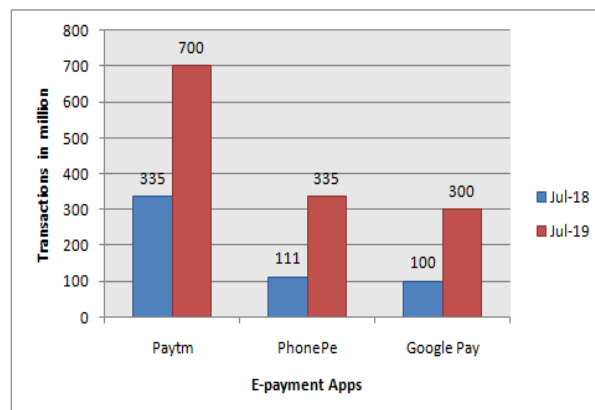


Fig.1. Transaction Growth in one month (July) of 2018 and 2019

This growth is 300% in a year. Thus, if we see the overall transactions by these three apps, then there are approximately 546 million transactions in July, 2018 and approximately 1335 million transactions in July, 2019. Thus, the use of these Payment Apps increase more than 100% in a year.

#### b) UPI Transactions and Growth

The number of UPI transactions made by these apps in different months in the year 2019 showing the growth or decline in transactions is shown below:

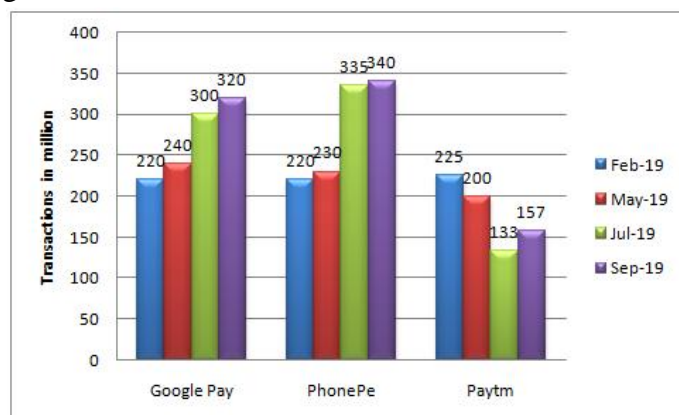


Fig.2 Number of UPI transactions in months of 2019

It is clear from the Fig. 2 that Google Pay is showing a continuous growth in the number of transactions made with 220 million in Feb [12], 240 million in May, 300 million in July and 320 million in September.

Table 2. Comparison between Apps

Sr. No.	Parameter		Google Pay	PhonePe	Paytm
1	(a) Share in Total number of Transactions	July, 2018	335 million	111 million	100 million
		July 2019	700 million	335 million	300 million
	(b)UPI Transactions and Growth	Feb 2019	220 million	220 million	225 million
		May 2019	240 million	230 million	200 million
		July 2019	300 million	335 million	133 million
		Sept 2019	320 million	340 million	157 million
			Continuous growth	Continuous growth	Not continuous growth
	(c) ATV	In March 2019	\$4.6	\$2.6	\$2.4
2	Market Share	2018	37.4% + other apps	19.6%	43%
		2019	25.2% + other apps	32.8%	42%
3	Losses/Profits	From 2018 to 2019	83% Profit	140% Loss	165% Loss
4	User Base	July 2018 July 2019 Sept 2019	40 million 25 million 67 million	23 million 55 million 55 million	80 million 140 million 140 million
5	Wallet Facility		No wallet facility	Provides wallet facility	Provides wallet facility
6	Cashback and Rewards		Directly added to the bank account	Added to wallet	Added to wallet
7	Security		More secure	More secure	Less secure
8	KYC Compliance		Not required	Required	Required
9	Own Bank Facility		Not provided	Not provided	Provided
10	Languages Supported		8 languages	11 languages	11 languages



PhonePe has also shown a large growth in terms of the transactions with 220 million in Feb, 230 million in May, 335 million in July, 340 million in September. But Paytm show a decline of 67 million in the number of transactions in the month of July 2019 as compared to the previous month from 200 million in May to 133 million in July[12].

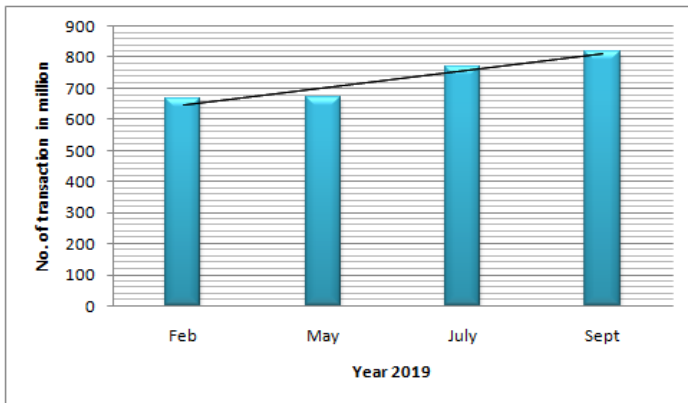


Fig. 3. Transactions made by apps in different months of 2019

Further, the total app wise contribution in the UPI transactions for the month of Feb., May, July and September 2019 is shown in the Fig. 3. The total Number of UPI transactions by all the three Apps in the month of February, 2019 is 665 Million, in the month of May 2019, it is 670 Million, in the month of July, 2019, it is 768 Million and in the month of September, 2019, it is 817 Million. It is clear from the Fig. 3 that the overall UPI transactions have shown upward trend in growth on month by month basis.

This shows that people are shifting more toward digital payments rather than cash payments. The reason for this shift in trend may be the ease of doing payments, rewards by the payment app companies etc.

### c) Average Transaction Value (ATV)

The ATV of Google Pay was almost double as compared to Paytm and PhonePe's ATV as shown in Fig. 4.

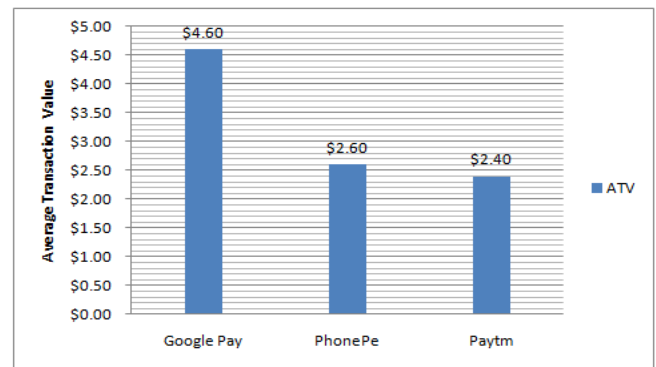


Fig. 4 ATV in March 2019

The Fig.4 shows that Google Pay's ATV was \$4.6, Phone Pay's ATV was \$2.6 and Paytm's ATV was \$2.4 in March 2019[12]. The main reason behind this is that Paytm app allows a low value per transaction as compared to other apps.

In the month of August 2019, Google Pay was leading in terms of transactions with 59.23% followed by PhonePe with 24.70% and then Paytm with 6.35% [13] as shown in Fig. 5. This is due to the reason that Paytm allows low value per transaction i.e. only Rs. 1 lakh at a time.

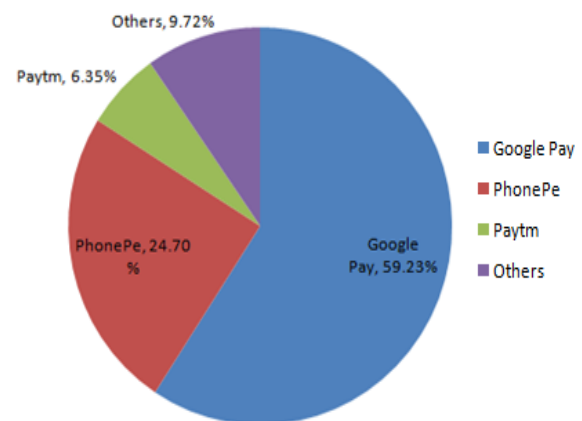


Fig. 5. UPI transactions share in Aug 2019

The overall growth in UPI transactions in the year 2019 made by these apps is shown in Fig. 6. It is clear from the Fig.6 that PhonePe showed the highest growth with 857.22% in the year 2019 and dominated all other apps in UPI transactions. Paytm made a growth of 827.68% and Google Pay made a growth of 337.73% in 2019[14].

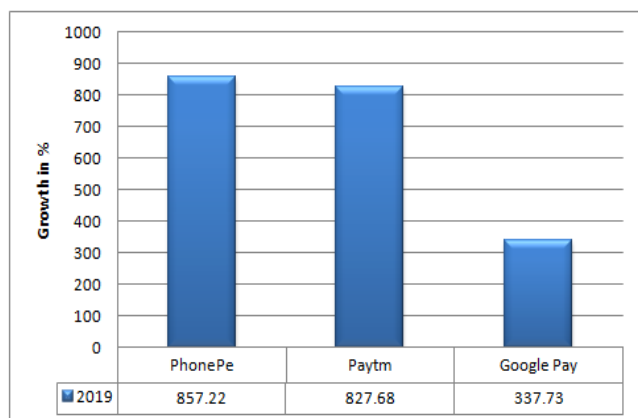


Fig.6. Growth in UPI transactions in 2019

A report in the month Feb. 2020 states that UPI is the most popular and preferred payment mode in India in terms of volume of transactions as compared to other means of payment such as cards and IMPS. This report further said that in Year 2019, the total number of transaction performed through UPI is 10.8 billion. This is 188% increase on year by year basis. Further, this report said that in terms of value Rs. 18.36 Trillion of transactions were done in 2019, which is 214% more as compared the year 2018. A report by Consulting Group of Boston showed that UPI will dominate the payment market with 59% payment transactions by 2024-25.

### 3.2 Market Share

The number of users that installed these apps in their mobile phones is shown in Fig.7. Paytm is leading among the three apps, as about 53.03% people have installed this app on their smart phones, PhonePe is behind Paytm with 41.41% and Google Pay is at last among the three apps in March 2019 as shown in Fig.7.

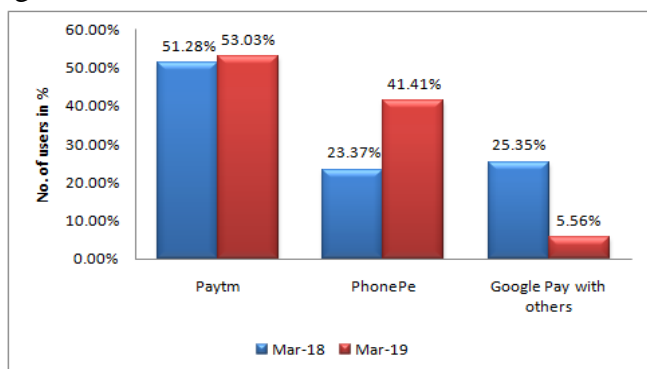


Fig.7 No. of users that have installed apps on their Smartphone's

But as compared to March 2018 PhonePe has shown a significant increase of 77% from 23.37% in 2018 to 41.41% in 2019. Paytm increased by a small amount from 51.28% in 2018 to 53.03% in 2019 [15].

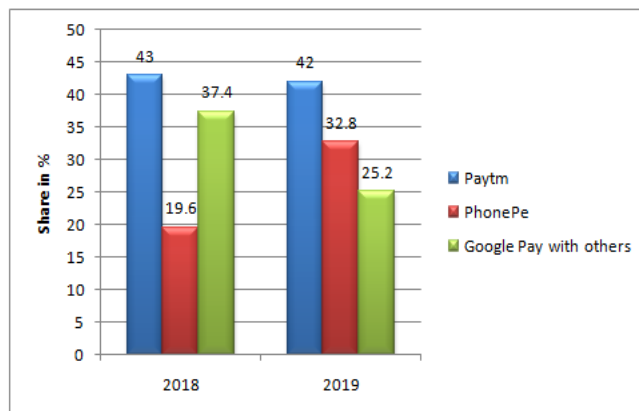


Fig.8 Market share in Mar-2018 and Mar-2019

The Fig.8 shows that the market share of Paytm declined in March 2019 by a little margin as compared to last year i.e. March 2018 from 43% to 42%. But PhonePe's share increased and is catching up with Paytm at a fast rate. The share of PhonePe increased from 19.6% in March 2018 to 32.8% in March 2019. Also, the share of Google Pay along with other apps was 37.4% in March 2018 and 25.2% in March 2019 [11].

### 3.3 Losses/Profits Made

From the Fig.9 and 10, it can be seen that Paytm and PhonePe faced loss and Google Pay made Profit in FY2019 as compared to FY2018.

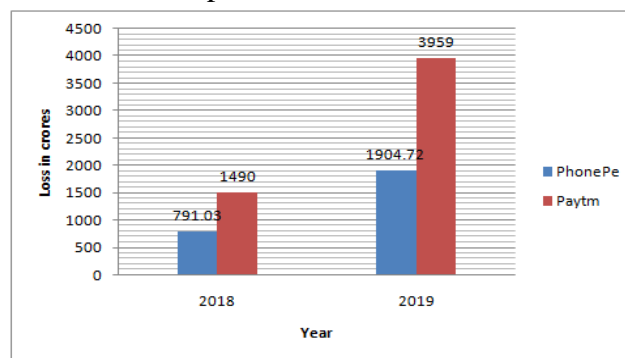


Fig. 9 Annual loss of Paytm and PhonePe

Paytm net loss in FY2019 that ended up in the month of March was found to be 3959 crore (\$549

million) which is 165% more than the last FY i.e. 1490 crore (\$206 million)[16] and PhonePe net loss increased by 140% from 791.03 crore in 2018 to 1904.72 crore in 2019[17]. But Google Pay made net profit which increased by 83% from 18 lakhs in 2018 to 33 lakhs in 2019 [18].

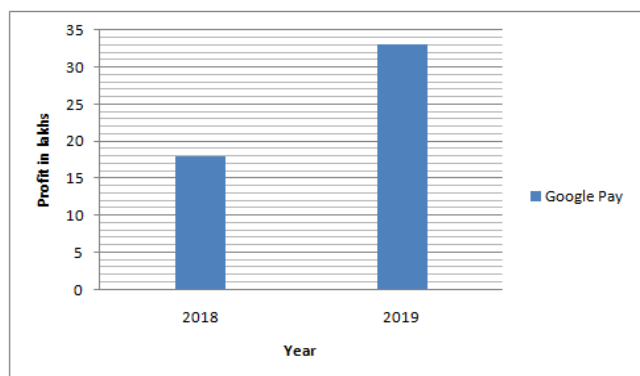


Fig. 10 Annual Profit of Google Pay

### 3.4 User Base

The Monthly Active Users (MAUs) of these apps in July 2018 and July 2019 is shown in Fig. 11 and MAUs of apps in Sept. 2019 are shown in Fig.12: The monthly active users of Google Pay have increased from 40 million in July 2018 to 67 million in Sept. 2019 [19]. PhonePe has managed to increase its user base from 23 million in July 2018 to 55 million in Sept. 2019. Paytm user base has reached 140 million in Sept. 2019 from 80 million in July 2018 [11] as shown in Fig. 11 and Fig. 12.

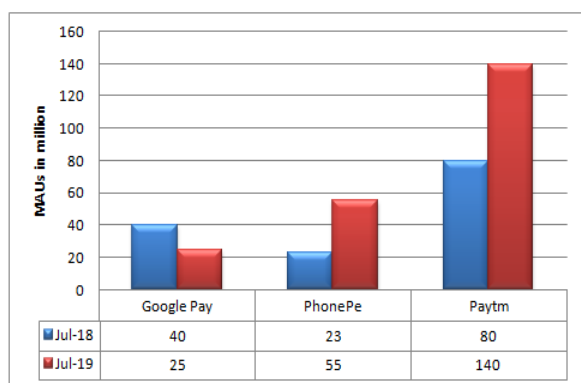


Fig.11 MAUs in July 2018 and 2019

But Google Pay has reached to this point in just 2 years and Paytm since 2010, PhonePe since Dec.

2015. Also, Google Pay and PhonePe users include only UPI platform users.

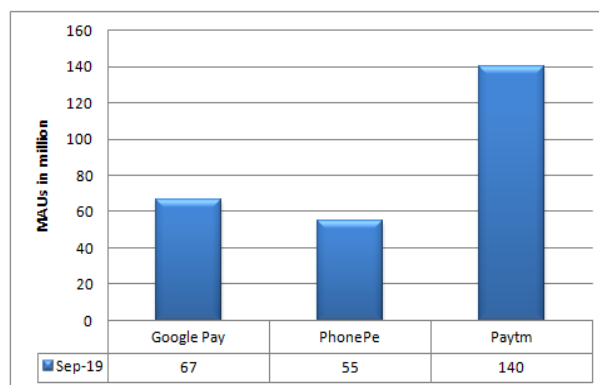


Fig.12 MAUs in Sept 2019

But in case of Paytm both payment banks and UPI platform users are included.

The merchant partners that used these apps in July 2018 and July 2019 is shown in Fig. 13, that clearly shows that the merchant partners of Paytm increased from 2 million in July 2018 to 7 million in July 2019. In case of PhonePe, it increased from 0.8 to 5.8 million and in Google Pay from 0.6 to 3 million [11].

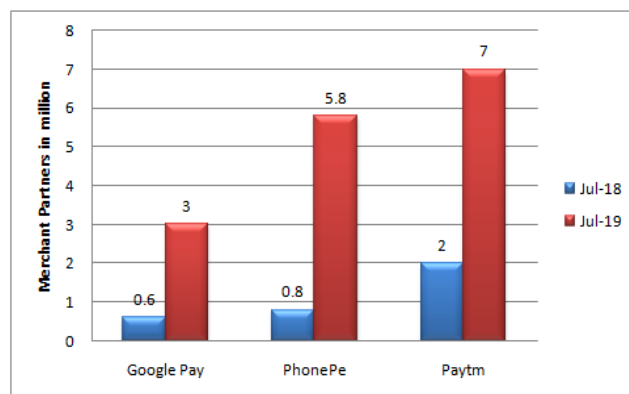


Fig.13 Merchant Partners in July 2018 and July 2019

### 3.5 Wallet Facility

The wallet in app allows user to store money that can be used anytime for making payments while shopping or paying bills. It is very convenient and efficient to use digital wallets while making payments as they are more secure and payments can be done quickly. A user can get different offers also while paying through these digital wallets.



### 3.6 Cashback and Rewards

Cashback on any transaction attracts users to pay through these apps so as to save money. Different apps provide different cashback offers and rewards on making payments. In Paytm the cashback can be converted into gold that remains secure with Paytm.

### 3.7 Security

Security is one of the major concerns of the user when it comes to making online payments. Some people don't use these apps just because of the risk of identity theft, money loss while making transactions etc. Google Pay and PhonePe provide high security than Paytm.

### 3.8 KYC Compliance

KYC is Know Your Customer form that helps the company to identify the user based on the identification provided by the customer. It is done to prevent identity theft, financial fraud etc. Paytm provides facility of Minimum KYC and full KYC. The validity of minimum KYC is 24 months. For using the Paytm wallet beyond 24 months full KYC needs to be done by the user. For full KYC in-person verifications needs to be completed.

### 3.9 Own Bank Facility

Some apps provide their own bank facility in which user can store money and also earn an interest on this stored money. Paytm Payments Bank (PPB) provides an interest rate of 3.5% on its savings account deposits. PPB also provides a new fixed deposit (FD) scheme that offers an interest rate of up to 7.5% on deposits through its partner bank [1].

### 3.10 Languages Supported

These apps support different languages so that user does not find it difficult to use the facilities provided by the app. The number of languages supported by these apps is shown in Fig. 14.

Paytm app supports 11 languages. PhonePe is also available in 11 languages. But Google Pay supports only 8 languages. Many regional languages are being supported by different apps and this feature has attracted a large number of users.

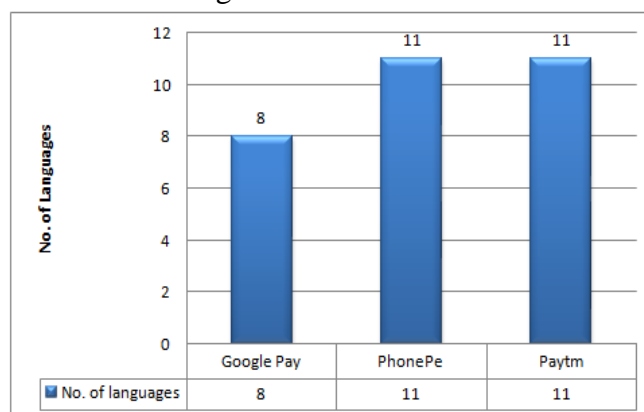


Fig.14. Number of languages supported by apps

## 4. OBSERVATIONS AND RESULTS

In this work, three most popular Payment apps have been studied by the authors and have found that all the three apps have more or less the same features. They all differ on some parameters such as Wallet Facility, Security and Languages Supported etc. Different Payment apps provide various options and features and they vary from one payment app to other payment app. Each Payment app has its own strengths and weaknesses.

From this study, it has been observed that the overall transactions by these three apps are approximately 546 million in July, 2018 and approximately 1335 million in July, 2019. Thus, the use of these Payment Apps increase more than 100% in a year.

Further, the payment app PhonePe showed the highest growth with 857.22% in the year 2019 followed by Paytm, whose growth is 827.68% and Google Pay, that made a growth of 337.73% in 2019. This means all the three apps have grown 3 to 8 times in the year 2019.

It is also observed in the study that, as compared to March 2018 PhonePe users have increased from 23.37% in 2018 to 41.41% in 2019. Paytm users have increased by a small amount from 51.28% in

2018 to 53.03% in 2019. Also, the market share of Paytm declined a little margin from 43% to 42% in this period, but PhonePe's market share increased from 19.6% in March 2018 to 32.8% in March 2019. It is also observed that the monthly active users (MAU's) of Google Pay have increased from 40 million to 67 million, MAU's of PhonePe have increased from 23 million to 55 million and MAU's of Paytm have increased from 80 million to 140 million in the period July 2018 to Sept. 2019. Further, it is observed that the merchant partners of Paytm increased from 2 million to 7 million, merchant partners of PhonePe increased from 0.8 to 5.8 million and merchant partners of Google Pay increased from 0.6 to 3 million in the period July 2018 to July 2019.

From the above observations, it is very clear that the Payment apps are very popular among people of India and people of India are regularly using these apps for payment purposes and switching from the cash payment system to online system in a big way.

## 5. CONCLUSION

The use of these apps for making online payments has made a huge growth in few years. The number of users using these apps is increasing significantly day by day. 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. More security features need to be added to increase the user-base further in future.

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