Perceptual Digital Gaps in Generations between Adoption and Usage of Different Modes of Payment in Digital Economy

Mukund Jakhiya, Bhawna Gaur, Raeesa Bashir

Abstract—The Mobile payment revolution has led to 55% increase in digital payments in India in the past one year. Currently there are 10 million locations that accept digital payments in the country. Though, internet connectivity, digital literacy and perceptual gaps in generations have proved to be the major hurdles for service providers to capture the full market potential for digital payments. This study holistically approaches the topic by critically analyzing the data collected from different strata based on age groups. It was observed that all the generations are readily adopting digital payments whereas there is still a perceptual gap that exist in the regular usage of mobile payments among the elderly and the young generations. Data analysis also reveals that mobile payments are mostly used for the low value purchase by the customers in comparison to the high value purchase as there is high risk and high channel cost associated with mobile transactions and also government regulations do not support very high value transactions. Another trend observed was Impulsive purchase behavior in customers (especially millennial) using mobile payments as these purchases are unplanned, unintentional and unthoughtful. These facts can be used as an input by the Government departments and the financial service providers to design strategies to bring convenience in the adoption and usage of digital transactions, to bridge the gap in the adoption of digital payments between young and old generations.

Keywords—Perceptual gaps, Mobile wallet, Digital transactions, Mobile payments, Unified Payments Interface, Retailers, Consumers, Digital Economy

I. INTRODUCTION

"Faceless, Paperless, Cashless" is the moto of digital India, to enhance economic visibility and transform the nation into a digitally empowered knowledge economy. According to a report from Bank for International Settlements, digital payments in India has increased by 55% in 2018 as compared to China where the digital transactions grew 48% in the same year.

Cashless transactions have gained momentum in India since 2016, when some banknotes were banned by the government of India. Currently there are 10 million locations in India that accept cashless payments giving a boost to digital transactions in the country. According to KPMG, there are more than 45 mobile wallet service providers in the country and around 50 Unified Payments Interface based mobile wallet providers which can facilitate instant real time payments between banks accounts [1].

UPI usage has surged from 1.9 million in 2016 to 900 million in 2019 [2].

According to KPMG the Digital Payments in India are growing at a compound annual growth rate (CAGR) of 12.7 percent. With QR code based wallet acceptance point and low setting up cost, the mobile wallet market share would grow at the rate of CAGR 52.2 percent for the period 2019-23. The Reserve Bank of India has projected a 50% increase in mobile payments under its '2021 vision document' with factors such as UPI, Unstructured Supplementary Service Data (USSD), Bharat Interface for Money(BHIM) and Bharat QR fueling the growth of the transactions.[3]

However internet connectivity, digital literacy and perceptual gaps in generations have proved to be the major hurdles for service providers to capture the full market potential for digital payments. Demographics play a major role in driving social and economic change in the society. Generation X prefers to use cash compared to younger generations, whereas the youngest ones are not able to use mobile wallets due to age limits. Millennials are the digitally advanced generation driving the change to disintermediate conventional modes of banking. For them it's the payment experience which plays a very important role and digital modes of payment provide them with a variety of options to enhance their experience. Hence it is important for the service providers to bring convenience in the adoption of digital transactions to bridge the gap in the adoption of digital payments between young and old generations.

II. BACKGROUND

Mobile payments are the payments made with a mobile phone by using internet [3]. Payments made using mobile devices have given a boost to mobile commerce activities and have become an important alternative mode of payment to cash and credit and debit cards [4] [5]. The key component of electronic payment processing system is a payment gateway which is a consumer facing interface that sends the customer information to the merchant bank, where the transaction is finally processed. The payment gateway will differ depending on whether it is point of sale terminals used in physical stores where payments are accepted either by card or by phone; or 'checkout' portal for online stores which require application programming interfaces for processing of payments.

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Some of the payment gateways in India that permit customers to make payments online are Citrus Pay Payment Gateway, CCAvenue Payment Gateway, PayUBiz India Payment Gateway, Direcpay Payment Gateway.

Fig. 1: Payment gateway process

The market for global online payment gateway was projected to grow at a CAGR of 10.3% from the year 2018 to 2028. Digital wallet providers in India also confirmed a 271% growth amounting to a total value of $2.8 billion. India offers greatest marketing opportunities for digital payments. It ranks second in the world with more than 1 billion mobile subscriptions. Out of this there are over 240 million smart phone users which are expected to rise to 520 million by 2020. With the growing 3G 4G penetration the internet user base is projected to reach 650 million by 2020.
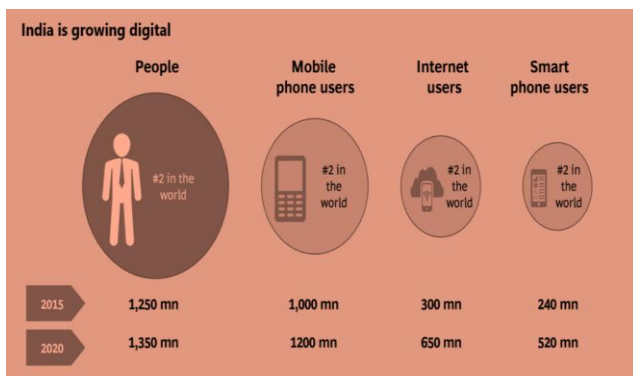

Fig 2. Growth of digital payments in India [20].

There are several factors supporting the growth of digital payments in India both from consumers and merchant's perspective. Figure 3 & 4 represents the factors enhancing digital payments.
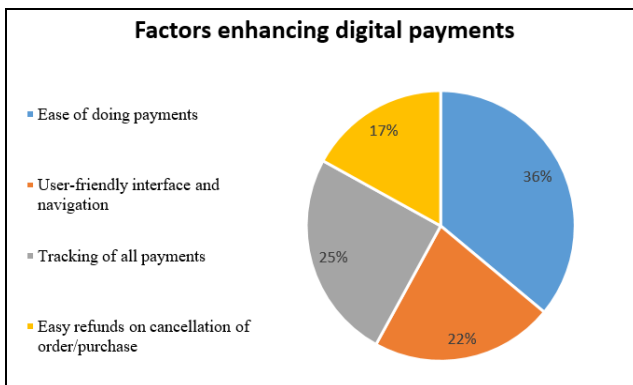

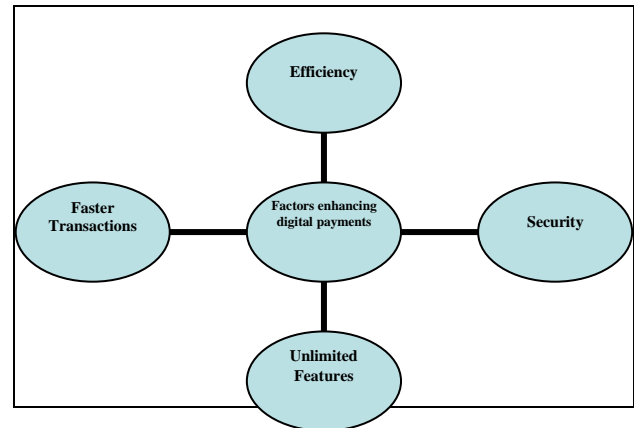**Fig 3. Factors enhancing payment gateways in India from end-users perspective [20].**

Fig 4. Factors enhancing payment gateways in India from merchant's perspective.

Personality traits such as innovativeness, user's perceptions about mobile payment system such as ease of use, compatibility and risks associated with the transactions along with extrinsic motivators such as rewards are the significant factors determining the adoptability of mobile payment systems. Innovativeness is the willingness or intent of an individual to try and test new technologies and products [6] [7] [8]. Such individuals will gather more information about new products such as mobile wallets to use it more easily. Another factor that have an impact on the consumer's perception toward mobile payments is the perceived ease of use of the payment method [9] [10]. It refers to an individual's perception that the new system is easy to use as compared to the current system in use [11] [12]. Consumers lack a clear understanding about the benefits offered by the mobile payment system. If the new payment methods such as mobile payments are perceived useful by the consumers than they will develop a positive attitude towards this mode of payment and will try to use it to get the perceived benefits [13] [14] [15]. Compatibility of the new system with existing values and beliefs [16] and social influence of family, friends and reference groups play a major role in determining the perception and attitude of individuals towards adoption of new system [17] [18].

After a thorough review of the available literature on mobile payments and cashless transactions we found a dearth of studies on perceived digital gaps in generations related to the adoption of mobile payments. Hence this study will discuss the gaps in the attitude and intention of different generations in adoption of digital modes of payment.

III. RESEARCH METHODOLOGY

The research technique used was structured questionnaire which was distributed to retailers and consumers in the capital city of India, New Delhi. Stratified random sampling technique was used for selecting respondents to collect primary data. Questionnaires were collected from a total of 150 respondents. Questionnaire consists of total eight questions which were sub-categorized into three different stratas depending on the age groups viz. less than 25(Gen Z), 25 to 40(Millennials or Gen Y) and more than 40(Generation X) and simple random sampling was used to draw the sample from different stratas.

A Chi-square test was performed to measure the relationship between selected variables. Chi-square evaluates whether given variable in data set are independent, called the Test of Independence. Chi-square test are used for testing hypothesis about one or two categorical variables and are appropriate when the data can be summarized by counts in a table. In this study Chi-square test was used to analyse the significant impact of age groups on different modes of payment used by consumers.

Study Objectives

1. To identify the consumers perception on transactions through different modes of payment in digital economy
2. To identify the factors influencing consumers towards mobile payment investment in comparison to other payment modes
3. To identify and analyze the impact of age groups on different modes of payment used by consumers.
4. To examine the impact of transaction related factors including convenience, security, low/ high value purchase, costs, and procedures on mobile payments.

IV. DATA FINDINGS & ANALYSIS

In this section we will present our quantitative data and analysis to support the research objectives of this study. The procedure starts with defining two mutually exclusive hypothesis viz. Null and Alternate hypothesis denoted by H_0 and H_1 respectively:b

H_0: There is no significant impact of age groups on different modes of payments used by consumers.

H_1: There is a significant impact of age groups on different modes of payments used by consumers.

Table I. Different Modes Of Payment Accepted By The Retailers.

Modes of Payment	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Mobile Payment	15	27	13	55	16.43 df= 4		
Cash	12	10	23	45			
Credit/Debit Card	23	13	14	50		0.0025	S
Total	50	50	50	150			

From the above table it is observed that the value of P is 0.0025 which is less than the level of significance that is 0.05 therefore we reject our null hypothesis and conclude that there is a significant impact of age groups on different modes of payment accepted by the retailers. It is seen that the consumers between the age group 25-40 have shown the highest acceptance rate with respect to online mobile payment as compared to cash, credit and debit cards.

Table II. Maximum Transactions Take Place Through Mobile Payments Or Other Modes Of Payment

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Yes(Mobile Payment)	16	32	27	75	10.72 df= 2	0.0047	S
No(other modes)	34	18	23	75			
Total	50	50	50	150			

It can be examined from the above table that the value of Chi square is 10.72 with 2 degrees of freedom and value of P is 0.0047 which is less than 0.05(level of significance) therefore we accept our alternate hypothesis and conclude that the maximum transactions take place through mobile payments rather than the other modes of payment.

Table III. Mostly mobile payments are used for low value purchase or high value purchase by customers.

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Low Value Purchase	27	42	39	108	12.5 df= 2	0.0019	S
High Value purchase	23	8	11	42			
Total	50	50	50	150			

It is analysed that mostly mobile payments are used for the low value purchase by the customers in comparison to the high value purchase reason being high risk and high channel cost associated with mobile transactions and also government regulations do not support very high value transactions. From the table it is seen that the value of P is 0.0019 which is less than the level of significance therefore we reject our null hypothesis and conclude that there is significant impact of age groups on mobile payments used for low/high value purchased by customers.

Table IV. Mobile payments are safe and secure.

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Yes	29	37	12	78	26.12 df= 2	<.0001	S
No	21	13	38	72			
Total	50	50	50	150			

From the above data it is observed that there is a variance in the perception of customers towards the safety and security of mobile payments. Customers in the age group of 40 and above feel that mobile payments are less secure as compared to the traditional modes of payment. On the other hand customers between age group 25-40 feel that mobile payments are safer as financial information of customer is duly verified by the service provider by way of KYC (Know your customer) verification. Moreover encrypted information of online payment details are used to authorize the payment making it more difficult for the hackers to get access to online transactions.

Table V. Are banks and government institutions promoting mobile payments

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Yes	31	39	36	106	3.15 df= 2	0.207	NS
No	19	11	14	44			
Total	50	50	50	150			

All the age groups are of the opinion that banks and government institutions are promoting mobile payments because it reduces the risk and cost of handling cash at the individual level. From the above table it is analysed that the value of Chi-square is 3.15 with 2 degrees of freedom having P value as 0.207 which is greater than 0.05 therefore we accept our Null hypothesis.

Table VI. Mobile payments requires minor investment in comparison to other modes of payment.

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Agree	33	37	32	102	1.43 df= 4	0.839	NS
Neutral	12	10	13	35			
Disagree	5	3	5	13			
Total	50	50	50	150			

It is seen from the above data that the value of P is 0.839 which is greater than level of significance 0.05 therefore we accept our Null hypothesis and conclude that all the age groups are of the opinion that mobile payments require minor investment in comparison to other modes of payment as there is no service or processing fee for the customer and the customers can avail peer to peer free fund transfer. Moreover through UPI (Unified Payment Interface) interface customers can utilize services free of cost.

Table VII. Mobile payment services options like mobile wallets are helpful in the collection of consumer data for improving customer relationship and engagement.

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Agree	28	35	30	93	2.24 df= 4	0.6917	NS
Neutral	14	10	13	37			
Disagree	8	5	7	20			
Total	50	50	50	150			

Mobile payment services are helpful in the collection of consumer data for improving services, identifying purchase trends and to design strategies for customer retention and engagement. From the above data it is analysed that the Chi-square value is 2.24 with P value as 0.6917 which is greater than 0.05 therefore we accept our Null hypothesis and conclude that mobile payments make it easier for businesses

to identify potential customers and assimilate information related to customer purchasing trends so as to predict future business strategies.

Table VIII. Mobile payments lead to impulsive purchase behavior in customers.

	<25	25-40	>40	Total	χ^2	P-value	Remarks *NS=Non-significant *S= Significant
Agree	27	39	29	95	7.61 df= 4	0.107	NS
Neutral	15	6	12	33			
Disagree	8	5	9	22			
Total	50	50	50	150			

Impulsive purchase behavior occurs when the purchase is unplanned, which is a very common phenomenon with customers using mobile payments. These purchases are unintentional, unthoughtful and prompt purchases as there are many rewards and discounts being offered to consumers who use mobile wallets and payment apps. Therefore purchasers make their buying decision on a whim. The above data also infers that there is a no significant difference in the thought process of different age groups as all the age groups believe that mobile payments fosters impulsive purchase behavior in customers.

V. CONCLUSION

Business prospects aided by well-functioning mobile payment systems can play a vital role in boosting digital payment adoption in customers in a developing country like India. The analysis reveal that while the customers are gradually adopting mobile payments some negative perceptions related to safety and security of digital transactions are holding back customers from adopting cashless payment options. There was a variance observed in the perception of customers towards the safety and security of mobile payments. Gen X customers feel that mobile payments are less secure as compared to the traditional modes of payment. On the other hand Millennials are of the view that mobile payments are safer as financial information of customer is duly verified by the service provider by way of KYC (Know your customer) verification. Moreover encrypted information of online payment details are used to authorize the payment making it more difficult for the hackers to get access to online transactions. Furthermore, all the age groups are of the opinion that banks and government institutions are promoting mobile payments because it reduces the risk and cost of handling cash at the individual level. So it is observed that all the generations are readily adopting digital payments whereas there is still a perceptual gap that exist in the regular usage of mobile payments among the elderly and the young generations. Mobile payment services are also helpful for retail enterprises to collect consumer data for improving services, identifying purchase trends and to design strategies for customer retention and engagement.

This mode of payment also makes it easier for businesses to identify potential customers and assimilate information related to customer purchasing trends so as to predict future business strategies. Further it is also examined that mobile payments are mostly used for the low value purchase by the customers in comparison to the high value purchase as there is high risk and high channel cost associated with mobile transactions and also government regulations do not support very high value transactions. Another trend observed was Impulsive purchase behavior in customers using mobile payments as these purchases are unplanned, unintentional and unthoughtful.

For India to become a cashless digital economy it is important that an appropriate framework is developed to support mobile payment system. In the absence of such a configuration, there is a risk that recipients might lose confidence in the system and financial inclusion goals may not be accomplished. Governments and financial service providers together have a vital role to play to improve access and encourage the adoption of mobile payments by entrepreneurs as well as their customers.

Though there are several studies conducted on the cashless modes of payments, there is a dearth of research to analyse the convenience and ease of digital modes of payments for the visually impaired. It is also important to explore the interventions made by financial institutions and government organisations to reduce the digital gap between user groups.

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