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Article

Unlocking Unified Payment Interface (UPI): Exploring UPI Adoption and Usage among Generation Z

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Abstract

The proliferation of Unified Payment Interface (UPI) has profoundly reshaped the digital payment ecosystem in India. UPI's emergence has notably enhanced the convenience and accessibility of digital payments for millions across the nation, concurrently diminishing reliance on cash transactions. This article aims to investigate how various behavioural factors influence the behaviour intentions of Generation Z regarding the usage of UPI while also identifying the primary use cases of UPI for this demographic. Integrating an extended Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model with generational cohort theory, this study delves into the effects of various behavioural factors on Gen Z's UPI usage behaviour intentions. Data from 308 respondents were collected via Google Forms for analysis. Regression results indicate that facilitating conditions, habits, social influence, and perceived transaction risk significantly impact behaviour intentions concerning UPI usage. Additionally, the study reveals that person-to-person money transfers and online and offline payments are the top UPI cases utilized most among Generation Z.

Keywords: *Digital transaction***,** *Generational Cohort, Generation Z, India, UPI, UTAUT2*

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1. Introduction

Recently, there has been a tremendous transformation in India's payment ecosystem. The "Digital India" initiative of the Indian government has aimed to integrate every section of society into its digital infrastructure domain. In digitizing the Indian economy, introducing a unified payment interface (UPI) has shown to be the most successful home-grown digital payment technology. UPI allows users to immediately transfer money from their bank account to another through mobile phone applications such as Google Pay, Phonepay, BHIM, Paytm, etc. UPI has become such a crucial part of India's digital payment ecosystem that it accounts for close to 80 per cent of all digital transactions by volume, and this number is continuously growing. Besides the government's initiatives to move towards a digitized economy, a natural transformative force driving India's growth story in this era is its demographic dividend of a very young population. Thus, it becomes important to study how the young population in India is perceiving and using UPI in their daily lives.

Theoretical Framework

Technology has made its way into every sphere of our lives, for better or worse. One such technology which has made a massive impact on the lives of the Indian masses is UPI. Compared to other payment technologies, it would not be an overstatement to say that UPI is the most advanced and easy-to-use payment system (Gochhwal, 2017). Rastogi et al. (2021) found in their study that the major drivers of UPI's growth in India have been its convenience, access to technology by the masses, and cost-effectiveness. This can be judged by the number of transactions through UPI spiking from 92 crore in 2017-2018 to 8375 crore in 2022 -2023 (Ministry of Finance, 2023).

However, when it comes to the adoption of technologies by different generations, it has been found that there are differences in usage patterns and preferences among different generational groups. Olson et al. (2010) noted in their research that young people use internet-based technology for much wider use cases than older adults. Also, the rate at which different generations adopt new technologies differs (Anderson,2015). Another thing that should be considered in this debate of technology adoption by different generations is the type of technology and its scope. Berkowsky, Sharit, and Czaja (2017) found that older adults will consider adopting new technologies if they believe it will positively impact their lives.

When we talk about India's growing population, it has been observed that the average age in India is strikingly young compared to other nations. This trend is so pronounced that India constitutes 20% of the global Gen Z population (United Nations, 2022). Hence, this study will aim to understand the perspective of this young generation towards the adoption and usage of UPI in their daily lives.

Generational Cohort Theory

Generations symbolize groups of people who were born during the same time period. According to Generational Cohort Theory, individuals born during the same time horizon experience similar historical, economic, political, and cultural events (Strauss & Howe, 1992). These incidents generate a collective consciousness and access to certain resources, which lead to common values and behaviour, such as a homogeneous identity and a similar way of life (Reeves & Oh, 2008). When we compare the younger generation of today with the previous generations, it is self-evident that this younger generation has different formative experiences as compared to the previous generations as a result of their exposure to internet and digital communication (Berk, 2009). Howe and Strauss (2000) in their study has categorized age cohorts into four generations: the first one is called the silent generation, which was born between 1924 and 1942; the second was called baby boomers (1946 - 1964); the third was Generation X (1961-1981) and the fourth and the youngest was the Generation Y (1982- 2000). A newer categorization formulated by McCrindle (2014) delineated six generations that reflect contemporary society: "Baby Boomers (1946–1964), Generation X (1965–1979), Generation Y (1980–1994), Generation Z (1995–2010), and Generation Alpha (2010 onward)".

For this study, we will use the latest classification of Generation Z, i.e., individuals born between 1995 and 2010.

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

Various techniques are available to study the critical aspects of adopting and accepting new technology from a social and psychological perspective. Davis (1989) has given one of the most used and famous models in this domain, the Technology Adoption Model, which studies the perceived ease of use and usefulness of any new technology that, when introduced to first-time users, influences their behaviour concerning its adoption. According to Venkatesh et al. (2003), the TAM model lacked in providing information about the intention of users and their behavioural intention in terms of adoption of a new technology, which made way for the formation of the unified theory of acceptance and use of technology (UTAUT). The UTAUT was based on four constructs : (1)performance expectancy (the extent of benefit one can achieve by using new technology in performing specific tasks), (2) effort expectancy (it is the degree of ease linked with the usage of new technology), (3) social influence (extent to which users perceive that their significant others believe that they should be using this new technology), (4) facilitating conditions (support available in using the specific technology in hand) (Venkatesh et al., 2003).

This model was formed in an organizational context to study the extrinsic motivation of organizational users concerning the usage and perception of new technology. However, as consumer-based technologies increased, extending the existing UTAUT model became necessary (Tamilmani et al., 2021). This new extended model, which focused on consumer-oriented technologies, was named UTAUT2 and included three new constructs: (1) hedonic motivation (fun element associated with using a specific technology), (2) price value (tradeoff between benefits and cost associated with utilizing a service or technology) and (3) habit (the extent to which users automatically perform an activity due to learning) (Venkatesh et al., 2012).

Conceptual Framework

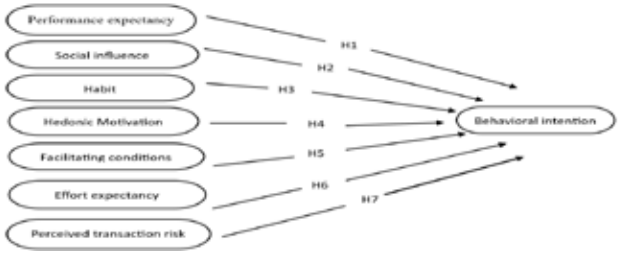
This study's conceptual model includes seven key constructs from the UTAUT2 model and one additional construct, perceived transaction risk, given by Biswas & Biswas (2004).

Table 1

Sr. No.	Factors	Definition	Source
1	Performance expectancy	Extent to which the use of a new technology will provide benefits to users in performing certain tasks.	(Venkatesh et al., 2003)
2	Perceived transaction risk	It refers to the potential losses that could happen as a result of sharing private information in a digital transaction.	(Biswas & Biswas, 2004)
3	Social influence	Social influence pertains to how much consumers believe that their close circle, such as friends and family, endorse the use of a specific technology.	(Venkatesh et al., 2003)
4	Habit	Extent to which individuals engage in behaviors automatically as a result of prior learning.	(Liao, Palvia, and Lin, 2006)
5	Hedonic motivation	This involves the enjoyment or the feeling of delight experienced from using a specific technology, independent of any additional specific advantages.	(Venkatesh et al., 2012)
6	Facilitating conditions	It is described as the perception or belief of a consumer that there is sufficient support available to conduct a specific task.	(Thompson et al. 1991)
7	Effort expectancy	It is the degree of ease linked with use of a specific technology.	(Venkatesh et al., 2003)
8	Behavioural Intention	Extent to which a consumer possesses specific intentions to either engage or refrain from engaging in particular actions at a defined point in the future.	(Davis, 1989) (Venkatesh et al., 2003)

Source: Data required for computation is taken from secondary sources.

Figure 1.



Source: Adapted from Venkatesh (2012) and (Biswas & Biswas, 2004).

2. Methodology

This descriptive study is based on eight constructs mentioned in the conceptual framework. The sample consists of UPI users belonging to Generation Z, i.e., individuals born between 1995 and 2010. Data was collected by conducting a field survey questionnaire completed by 308 respondents from Shimla, Himachal Pradesh, India. Responses were collected with the help of a Likert 5-point scale, and multiple statements were given for every variable.

3. Analysis and Results

i. The purpose of this study is to study the influence of various behavioural factors on the behaviour intention of users belonging to Generation Z regarding the UPI mode of digital payment.

Statements under Different Constructs:

Table 2

Constructs	Sr. No.	Items
Performance expectancy	1	UPI is useful in my daily life.
	2	UPI helps to complete my financial tasks more quickly.
	3	I find using UPI to be a convenient way to make transactions.
Effort Expectancy	4	Learning how to use UPI was easy.
	5	The process of using UPI is straightforward.
	6	Using UPI does not require much effort on my part.
	7	It was very easy for me to become familiar with UPI.
Social influence	8	My friends and family think that I should use UPI.
	9	People in my environment believe that I should use UPI.
	10	Most people in my surrounding use UPI.
Facilitating Conditions	11	I have access to the necessary resources required for using UPI (such as a bank account, mobile phone, and internet).
	12	UPI is compatible with other technologies that I use.
	13	The majority of the people and businesses accept payments from UPI.
	14	I can get help from others when I have difficulties using UPI.
Hedonic Motivation	15	Using UPI adds an element of enjoyment to my transactions.
	16	Using UPI is fun.
	17	The design and features of UPI make the experience very entertaining.
Habit	18	Using UPI has become a habit for me.
	19	Using UPI is something that I do without thinking.
	20	Using UPI is a part of my daily routine.
Perceived transaction risk	21	I feel that my payment data can be compromised while using UPI.
	22	I think that hackers can access my bank account if I use UPI.
	23	There is a risk of encountering fraudulent activity when using UPI.
Behavioural Intention	24	I believe that my use of UPI to increase in the future.
	25	I will use UPI in the near future.
	26	I will recommend UPI to my friends and family.
	27	I will always try to use UPI where possible.

Source: Adapted from Venkatesh (2012) and (Biswas & Biswas, 2004).

This study has used multiple regression to test the impact of various behavioural factors on the behaviour intention of Generation Z users with respect to the UPI mode of digital payments. Reliability tests were performed to verify the internal validity of various constructs used in this study, and every construct has achieved a Cronbach's alpha value of above 0.7, ensuring internal consistency of the scale used.

Model Fit

Table 3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.802[a]	.644	.636	.41786	.644	77.506	7	300	<.001

a. Predictors: (Constant), EE, PT, HM, FC, SI, H, PE

Source: Data required for computation is taken from primary sources.

The value of the adjusted R square for this model comes out to be 0.636, which denotes that the linear regression in this model explains about 63.6 per cent of the variance in behaviour intention.

Regression Result

Table 4

Coefficients[d]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.287	.282		1.018	.309		
	Performance_expectancy	.105	.062	.086	1.697	.091	.460	2.176
	Effort_expectancy	.082	.067	.061	1.216	.225	.473	2.113
	Social_influence	.120	.037	.137	3.247	.001	.665	1.504
	Facilitating_conditions	.251	.053	.182	4.694	<.001	.790	1.266
	Hedonic_motivation	.043	.031	.060	1.365	.173	.605	1.654
	Habit	.419	.035	.511	11.896	<.001	.644	1.552
	Perceived_transaction_risk	-.099	.025	-.140	-3.982	<.001	.960	1.042

a. Dependent Variable: Behavior_intention

Source: Data required for computation is taken from primary sources.

The collinearity statistics of this model depict that there is no issue of multi-collinearity in this model as the variance inflation factor (VIF) is in the satisfactory zone for all the variables, i.e. less than three. Additionally, each independent variable was studied individually to test their influence on the behaviour intention of UPI users. The results revealed that only four independent variables, i.e., habit, facilitating conditions, social influence and perceived transaction risk, significantly impacted users' intention concerning UPI.

Hypotheses Testing Result

Table 5

Hypotheses	Path	P value	Status
H1: Performance expectancy significantly influences Generation Z's intention to adopt UPI.	PE → BI	.091	Rejected

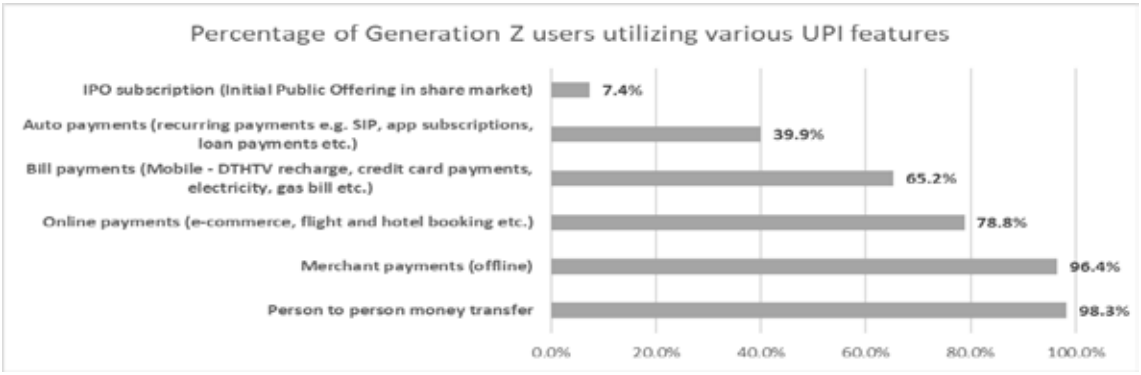
H2: Social influence significantly influences Generation Z's intention to adopt UPI.	SI → BI	.001	Accepted
H3: Habit significantly influences Generation Z's intention to adopt UPI.	H → BI	< .001	Accepted
H4: Hedonic motivation significantly influences Generation Z's intention to adopt UPI.	HM → BI	.173	Rejected
H5: Facilitating conditions significantly influences Generation Z's intention to adopt UPI.	FC → BI	< .001	Accepted
H6: Effort expectancy significantly influences Generation Z's intention to adopt UPI.	EE → BI	.225	Rejected
H7: Perceived transaction risk significantly influences Generation Z's intention to adopt UPI.	PTR → BI	<.001	Accepted

Source: Data required for computation is taken from primary sources

ii. To identify the major use cases of UPI among Generation Z users.

To find out the major use cases of UPI among Generation Z users, a multiple-response question was given to the respondents, who mentioned all the use cases of UPI. Respondents were asked to select all the use cases they had used with the UPI digital payment mode. It was found that the majority of the respondents have used UPI for person-to-person money transfers (98.3%), offline merchant payment (96.4%) and online payments (78.8%), and a moderate number of respondents have used UPI for making bill payments (65.2%) and for auto payments (39.9%). At the same time, a tiny percentage of respondents have used UPI for IPO subscriptions (7.4%).

Figure 2.



Source: Data required for computation is taken from primary sources.

4. Discussions

Based on the results from data analysis, it was found that habit, social influence, facilitating conditions and perceived transaction risk significantly impact users' behaviour intention concerning UPI. The habits of an individual represent the ingrained patterns of behaviour that are attained through repeating an action multiple times. It is an automatic response to some specific cues present in our environment and operates outside the conscious awareness. The results of our study also back this as the respondents who believe that they have made UPI a part of their daily lives in such a way that they use it without even thinking had agreed with the statements that they will continue using UPI in future and will also recommend it to others. This leads to the next significant factor that impacts the adoption of UPI among GenZ users, i.e., social influence. The use of social media marks this generation, and the social image is very important to them. Data analysis found that respondents' intention to use UPI is significantly impacted by their surroundings and recommendations from their friends and family. The following variable that significantly impacted behaviour

intention is the facilitating condition related to UPI, such as the availability of bank accounts, mobile phones, and the internet. Also, the wide acceptance of UPI payments from every section of merchants and businesses has greatly facilitated its adoption. The analysis also supports this claim and suggests that the respondents who believe that the facilitating conditions for using UPI are widely available also strongly intend to continue using UPI to a greater extent.

Another critical factor is the perceived transaction risk from a user's point of view, which respondents feel while using UPI. It was found that perceived transaction risk negatively impacts the behaviour intention for using UPI. This explains that if the users believe their technology can cause financial loss, they hesitate to use it. Many respondents believe that using UPI can cause some kind of fraudulent activity or data breach. They also believe that their use of UPI will not increase in the future and will not recommend using UPI to others.

Regarding the features of UPI most commonly used by respondents, it is clear that most participants have used UPI for person-to-person money transfers, offline merchant payments, and online payments. The wide acceptance of UPI by both online merchants (e-commerce) and physical shops (offline merchants or vendors) can be attributed to this finding. Although the use of UPI for IPO subscription came out to be very low as compared to other features, this can also be explained by the fact that in India, the demat account penetration is still low, so naturally, the use of UPI for IPO subscription is not high as the number of people applying for IPOs in India is low.

5. Recommendations

The findings of this study have established the significant impact of facilitating conditions, social influence, habit and perceived transaction risk on the behaviour intention of users belonging to Generation Z concerning UPI. This provides real-world implications for improving UPI's adoption rate from both a technological and commerce point of view. To tackle the impact of perceived transaction risk, the government can run an awareness campaign to promote users' secure use of UPI in their daily lives. Though the younger generation is considered tech-savvy, they must still be aware of different malpractices and scams associated with digital payments. Much work has been done from a technological point of view to make UPI safer, but further improvements in the security features of this technology should continuously be pushed for.

Facilitating conditions in the case of UPI has been a critical factor in its success, which the findings of this study have also backed. Smartphone access, availability of cheaper internet and bank account penetration in every section of society have contributed to this phenomenon. Another vital factor responsible for UPI adoption on such a large scale can be attributed to the broader acceptance levels of UPI from a commerce standpoint. Every type and scale of business, from a multinational corporation to a small roadside vendor, is accepting payments from UPI today, and this acceptance is leading to greater use of UPI. Further increasing the scope of UPI acceptance can help digitize the economy and make commercial activities more transparent.

6. Conclusion

This study aimed to investigate the various behaviour factors that impact the behaviour intention of UPI users belonging to Generation Z. The study integrated generational cohort theory with an extended unified theory of acceptance and use of technology. Facilitating conditions, habit, social influence, and perceived transaction risk significantly impacted behaviour intention. Also, person-to-person money transfers and offline and online payments were the three most utilized UPI cases among Generation Z users in Shimla.

Limitations

This study is confined to a single city and a single cohort of users, raising the issue of generalizability. Another limitation is its quantitative nature; a qualitative study in this domain can lead to more profound insights regarding users' behaviour regarding the acceptance and use of this technology.

Statement on Conflict of Interest

On behalf of all authors associated with this study, it has been stated that there is no conflict of interest.

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