

# UPI - An Innovative step for making Digital Payment Effective and factors affecting Consumer Perception On the use of UPI

Authors:

Rishabh Jha

Xavier Institute of Management & Entrepreneurship, Bangalore-560100 [rishabhj26blr@xime.org](mailto:rishabhj26blr@xime.org)

Rohit Kumar

Xavier Institute of Management & Entrepreneurship, Bangalore-560100 [rohit26blr@xime.org](mailto:rohit26blr@xime.org)

## 1. Abstract:

The National Payment Corporation of India (NCPI) launched the Unified Payment Interface (UPI), which is one of the most wonderful, modernised, and cost-effective inventions. The proliferation of smartphones, technological advancement, and effective internet communications have increased the importance of mobile payment services for smartphone users, financial institutions, and banks. The National Payment Corporation of India (NCPI) may have established a ground-breaking method of cash transfer through a virtual payment address, the Unified Payment Interface (UPI), in order to promote a paperless and cashless economy. For Indian shoppers, demonetisation offered a unique forum for accepting digital payments. Following demonetization, government reforms pushed for widespread adoption of cashless transactions.

The repercussions of Demonetisation have resulted in a massive increase in digital payment use. Digital Payments have been around since the 1980s, so it isn't a new technology; the soil growth is in the various technologies that are used to perform digital payments. This paper discusses the UPI (Unified Payment Interface) digital payment technique, including its architecture, technologies, operations, parties involved in UPI transactions, benefits and challenges, and factors influencing consumer satisfaction. Concerning the use of UPI.

The buyer's view of digital payment has a significant and optimistic effect on digital payment adoption. Data will be collected using a standardised Questionnaire form and secondary data sources such as NPCI to understand customer perceptions and intentions about digital payment. Since 36 percent of the Indian population is between the ages of 16 and 28, primary data will be collected from students and younger audiences across the country.

**Keywords:** UPI, Digital Payments, Demonetization, Reliability Testing, NPCI, Exploratory Factor Analysis, Linear Regression.

## 2. Introduction:

The Unified Payments Interface (UPI) is a real-time payment system developed by India's National Payments Corporation to facilitate inter-bank transactions. The Reserve Bank of India regulates the interface, which works by instantly transferring funds between financial institution-owned mobile platforms.

India is unpredictably heading in the direction of digitization. The announcement of Demonetization by Prime Minister Narendra Modi on November 8, 2016, resulted in a major expansion of virtual free options in India. As a result, virtual charge companies take a risk with both hands in order to spread out their market share. For Indian clients, demonetization has created a unique forum for the acceptance of practically free as an alternative to coins. Mr. Narendra Modi, the Prime Minister of India, has advocated for the implementation of cashless transactions as part of the government's post-demonetization reforms.

Demonetization took place on November 8, 2016, in one of the world's largest economies, with the aim of eradicating black money and making India a cashless economy.

This provided a clear picture for many companies to develop mobile payment systems, such as wallets and UPI (united payment interface), which was developed by the National Payments Corporation of India (NPCI) (National payment corporation of India).

Since then, we've seen a change in Indians' consumption patterns, with many opting for UPI transactions. And the factors that influence the use of UPI payments, such as protection, convenience, and so on.

### 3. Literature review-

The aim of this study was to learn about customer perceptions of UPI payments, including whether they are familiar with them and, if so, what factors encourage or discourage them from using them. According to the literature, UPI payment is a mechanism in which commercial transactions are carried out using electronic devices such as smartphones and UPI-enabled applications such as Gpay, Samsung Pay, PhonePe, and others. It's also a more advanced version of an electronic payment system that allows users to conduct money transactions quickly and easily.

It was discovered that one of their main concerns is protection and trust, which has an effect on their behaviour when it comes to UPI Payment systems. Further, we attempted to understand how age influences users' intention to use, and discovered that although youth are interested in adopting new technology, older people are not. They are motivated by their own social group to adopt new technology, but this relationship could not be formed for either youth or the older generation in the case of the UPI payment system.

It was discovered that when it comes to merchants' intention to use UPI payment technology, variables such as compatibility and usability of service, consumer value addition, and customer value addition affect their behavioural intention significantly. In other words, for a retailer, utility of services means that they should not only be cost-effective, but also generally embraced by their customers, because if this payment mechanism offers greater convenience than other forms of payment, both customers and merchants would be more likely to use it.

In terms of individual or non-merchant users, factors such as innovativeness, stress to use (which measures an individual's level of discomfort when using technology), and social influence were investigated, and it was discovered that high stress negatively correlated with user satisfaction, whereas social influence and recommendation are positively correlated with intention to use UPI Payment. Early adopters prioritise ease of use and believe they have a thorough understanding of UPI-payment systems, whereas late adopters are tech-savvy and use UPI payment as a last resort.

We also tried to figure out how various factors influence user acceptance and recommendation of digital UPI Payment. According to current research, perceived technology protection, performance standards, and innovativeness all have a positive effect on digital UPI payment recommendation, implying that if a consumer believes the payment system is safe and meets his expectations, he is more likely to recommend it to others. The effect of personality traits and behavioural values on adoption behaviour was also investigated, and it was discovered that both are very important for digital UPI payment adoption and use, but their impact on the pre-adoption stage and post-adoption stage is different.

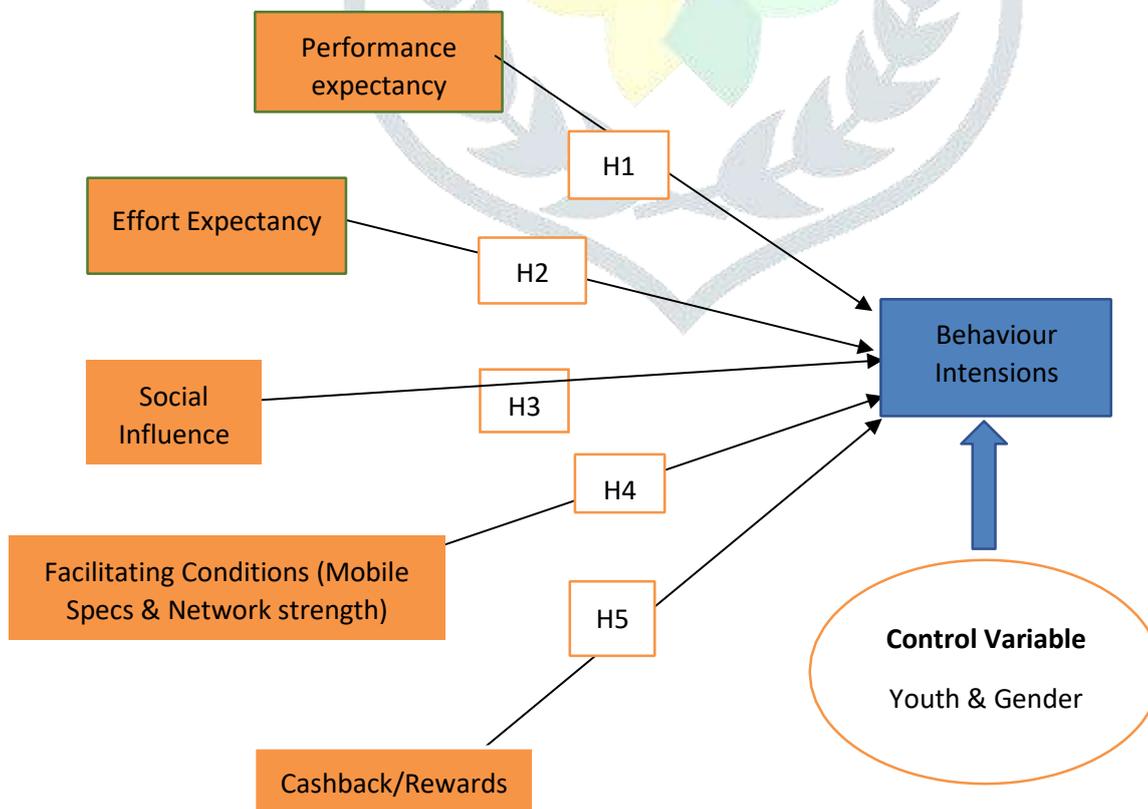
Further, we looked into the literature to learn more about UPI payment users' post-adoption behaviour and what motivates them to keep using it. We discovered that the quality of service and system are both positively associated with confidence and satisfaction, implying that the higher the quality of service and system, the greater the users' trust and satisfaction with the UPI payment system. Furthermore, the flow is affected by the quality of information and service; if confidence, flow, and satisfaction are high, the customer will continue to use the current service.

Based on the above-mentioned literature, we propose an extended UTAUT2 model for conceptual modelling the factors that influence the adoption of UPI-based payment apps in India, based on our literature review.

#### 4. Research Objective

- a) The customer perception on adoption of UPI mode of payment.
- b) How significant the difference is perceived by respondents for various attributes of UPI on the basis of age of respondents.
- c) How significant the difference is perceived by respondents for various attributes of UPI on the basis of Performance Expectancy, Effort expectancy, Social influence etc of the respondents.

#### 5. Conceptual Model



#### 4.1 Performance Expectancy

Performance Expectancy or PE - “Performance expectancy is the benefits and utilities (e.g., saving time and effort, efficiency, accessibility, customization, convenience) that could be obtained from using innovative channels” [Alalwan et al.,(2018), p.128]. As regards the current study is concerned, Performance Expectancy highlights the usefulness of UPI Payment Applications for customers. Performance Expectancy also highlights as to how much a user of UPI Payment Application feels efficient or helped by the said UPI Payment Applications.

**Construct** should make the Consumers feel more productive to an extent as they can do their payment and banking tasks more quickly.

**H1:** Performance Expectancy is positively related to the intention to use UPI-based payment apps.

#### 4.2 Effort Expectancy:

Effort Expectancy or EE (Wang (2017) and Farooq (2017))- In the paper, Venkatesh (2003) Effort Expectancy means “the extent of ease associated with the usage of a system” (p.450). “To accept a new technology, the basic criterion for the people is to check to what extent the new technology is easy to use apart from its positive value addition” (Alalwan,2017). It has been highlighted in prior studies that if a certain technology is easy and provides convenience, then it can affect individuals to take up the same (Dwivedi et al.,2017; Shareef et al., 2017). Effort Expectancy means how easily can a person that is in our case a Management Student use an UPI payment application. According to the Effort Expectancy.

**Construct**, people should not face any problems or face only a few problems while using a technology; in our case using UPI payment applications by Age Groups.

**H2:** Effort Expectancy is positively related to the intention to use UPI-based payment apps.

#### 4.3 Social Influence:

Social Influence (SI) (Farah (2018) and Farooq (2017)) – This **Construct** refers to “the degree to which a person perceives that something important which others believe, that he or she should apply the new system” [Venkatesh (2003), p.451]. This construct means the way in which the habits of the people around a person can affect his or her habits. In this study, since we are focusing on different age groups, the Social Influence construct becomes all the more important because people of random age groups get affected by social influence in a different way, mostly. Thus, in such situations, the habit of other peers becomes a big reason which might or might not affect the usage of a technology which in our case is UPI Payment Applications. There is always a chance of individuals, especially students or youth to shift from a non-socially acceptable technology to a socially acceptable one.

**H3:** Social Influence is positively related to the intention to use UPI-based payment apps.

#### 4.4 Facilitating Conditions:

The relationship between facilitating circumstances and a person's intention to do something. Facilitating software tools, hardware, technical support, and awareness of information technology in India (Taylor and Todd, 1995a, 1995b). When it comes to the use of any technology, the FC provides advice, assistance, and instruction. FC, according to Venkatesh et al. (2012), refers to the consumer's understanding of the

help and services available to conduct behaviour. When consumers can quickly access and use the internet and a computer, they adopt the use of electronic banking transactions (Joshua and Koshy, 2011). FC has a strong relationship with the need to use mobile communication technology.

**H4:** Facilitating Conditions are positively related to the intention to use UPI-based payment apps

#### 4.5 Cashback and rewards:

It was found that when the message contains incentives, the concentration of consumers on advertisements increases (Kim & Han, 2014). Previous research has concluded that the components of extrinsic motivation (taking values and goals as one's own) are internalized in the long run (Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan & Deci, 2000). In this way, by using fines or incentives, customers can control the externally regulated actions internally (Ryan & Connell, 1989).

**H5:** Cashback/ Reward Motivation is positively related to the intention to use UPI-based payment apps.

## 6. Research Methodology

This study was designed to use a quantitative methodological approach. The research instrument, a questionnaire, was created using similar theories and accepted by experts.

The factors influencing the decision to use UPI payment in India were studied using a quantitative method in this research report. In this research, the primary source of data and knowledge was a survey questionnaire, as well as other trustworthy secondary sources including related journals, documents, and online databases.

**Survey instrument design:** The survey instrument was created based on previous research. Initially, the objects were adapted from pre-existing scales used in the literature. We made slight changes where appropriate to accommodate the Indian perspective on UPI payments.

<u>Construct</u>	<u>Code</u>	<u>Questions</u>
<b>Performance Expectancy</b>	PE1	I gain more time when I use UPI
	PE2	UPI optimizes my financial operations
	PE3	UPI allows me to make my payments quicker
	PE4	I will optimise my earnings using UPI
<b>Effort Expectancy</b>	EE1	Learning to use UPI payment is easy
	EE2	It's easy to enter in the UPI payment app
	EE3	It's easy to use the UPI payment service skilfully
	EE4	I do not have any doubts about what I'm doing when I'm using the service
<b>Social Influence</b>	SI1	My friends and family value the use of UPI payments
	SI2	The people that influence me use UPI payment
	SI3	I find mobile payment trendy
	SI4	The use of UPI payment gives me professional status

<b>Facilitating Conditions</b>	FC1	I have the resources necessary to use mobile learning
	FC2	I have the know-how to use UPI payment
	FC3	If I have any doubts about how to use the UPI payment service I do have a support line to help me
	FC4	I have proper Network signal strength to complete UPI transaction
<b>Cashback &amp; rewards</b>	CR1	Cashback and reward encourage me to transact more through UPI
	CR2	Cashback and Reward makes me loyal to company and else any platform is fine for me
	CR3	Cashback and rewards ca be significant feature to switch my default UPI payment app

## 7. Data Analysis:

<b>Coefficients</b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.578	.359		4.395	.000
	PE	.464	.063	.453	7.381	.000
	EE	.209	.063	.202	3.310	.001
	SI	.083	.074	.063	1.120	.265
	FC	.194	.064	.184	3.015	.003
	CR	-.288	.061	-.264	-4.726	.000

a. Dependent Variable: BI – Behavioural Intention;  
 Note: PE- Performance Expectancy; EE- Effort Expectancy;  
 SI- Social Influence; FC- Facilitating Conditions; CR- Cashback & Rewards;

## Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.768 <sup>a</sup>	.590	.575	.85874

a. Predictors: (Constant), PE, EE, SI, FC, CR;

**H1:** Performance expectancy **has a Significant relationship** with the Behavioural Intention in using UPI payments with **Beta = 0.453, T-statistics = 7.381 and P value <= 0.05.**

**H2:** Effort expectancy has a **Significant relationship** on the Behavioural Intention in using UPI payments with **Beta = 0.202, T-statistics = 3.310 and P value <= 0.05.**

**H3:** Social influence has **no positive relationship** with Behavioural intention associated with UPI payments with **Beta = .063, T-statistics = 1.120 and P value  $\geq$  0.05.**

**H4:** Facilitating conditions has **a Significant relationship** with Behavioural intention associated with UPI payments with **Beta = 0.184, T-statistics = 3.015 and P value  $\leq$  0.05.**

**H5:** Cashbacks & Rewards has **no positive effect** with Behavioural intention associated with UPI payments with **Beta = -.264, T-statistics = -4.726 and P value  $\leq$  0.05.**

## 8. Findings:

The study aimed to develop a systematic model for measuring the impact of performance expectancy, effort expectancy, social influence, facilitating conditions (Mobile specs & Network strength), and Cashbacks & Rewards on consumers' behavioural intentions in order to better understand their perceptions of UPI payments. Performance expectancy, effort expectancy, facilitating conditions (Mobile specs & Network strength), and Cashbacks & Rewards have all been found to have a major effect on customer behaviour in leading them towards digital payments (UPI).

These following four factors which were significant in relation with behavioural intention accounted for approximately 57.5% (Adjusted R Square = 0.575) of the change in behavioural intention in the context of adopting & usage of UPI payments and the remaining impact might be dependent on the factors that we have not considered in our study.

## 9. Conclusion:

The aim of this study was to see how users perceive about adoption of UPI payments. To determine this, we have considered various factors such as performance expectancy, effort expectancy, social influence, facilitating conditions (Mobile specs & Network strength), and Cashbacks & Rewards on consumers' behavioural intentions.

With our study we conclude Performance expectancy, effort expectancy, facilitating conditions (Mobile specs & Network strength), and Cashbacks & Rewards found to have an impactful relationship with the behavioural intention of the users who prefer to adopt and use UPI payments.

Therefore, we infer that users who want a smooth payment experience, with least effort requirement & are also being facilitated by latest tech have enabled them to drive towards being more friendly with digital UPI payments while being more tolerant with this new mode of payments which have been introduced in Indian mainstream markets in the last five years.

## 10. Limitations and Scope for future research:

While the current study offers an affluence of information about users' perceptions to adopt UPI payments though it has some limitations.

The first limitation is that the data was collected through a questionnaire via google survey due to COVID constraints and with a sample size of 74. So, future research can be done on a larger demography across the country and can also use exploratory methods such as focus group interviews, prescriptive techniques etc for the collection and evaluation of data.

The second limitation here is, the data and perception which were inculcated in this study were from pre-covid and during covid eras. So, the next research could be conducted in the post covid era, which could give an impression on what was the compelling reason for people to shift from traditional methods of payments to a digital secured payments method (UPI) ie reasons like health concern over the exchange of currency etc.

## 11. References

- i) Ren-Zong Kuo , Why do people switch mobile payment service platforms? An empirical study in Taiwan.
- ii) Emma Slade\*, Michael Williams, Yogesh Dwivedi and Niall Piercy, Emma Slade\*, Michael Williams, Yogesh Dwivedi and Niall Piercy.  
<http://dx.doi.org/10.1080/0965254X.2014.914075>
- iii) Siddharth Kalra, Insights into the Use of UPI Payment Applications by Management Students in India.

