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# Upi System: Utilisation and User Reaction toward Cost-Free Digital Payment Platform among Mobile Payment Users in Chennai

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## Abstract

After the pandemic, usage of digital platforms has increased. The reason behind the fast adoption of digital payment is the penetration of smartphones, affordable internet connection, and existing applications that are cost-free digital payment applications. there is no fee levied for the bank-to-bank and utility payment transactions. This study focuses on the utilisation of cost-free digital payment and user reaction toward digital payment applications. This research employed emojis to analyse the user reaction, the finding indicates that most of the users using third-party payment applications, and users are happy with the service provided by cost-free digital payment applications. Occupation and age are the most influencing factor toward the utilisation of digital payment. The study concluded that most of the users are utilising the third-party application and their emojis reaction towards security is frustration and disappointment, therefore, this study emphasises building trust among the users would lead to a paper-cashless society.

**Keywords:** Digital payment, Third-party payment application, user trust, and paper cashless society.

## Introduction

India is heading toward digital India, digital financial inclusion is the tool to reach the destination. Cost-free payment applications are easily available for smartphone users. Penetration of smartphones and changes in lifestyle paves the way for the adoption of digital platforms. The availability of low-cost smartphones is the gateway to digital transformation. And there is no cost for receiving and sending the money through a bank account and it's easy to pay utility bills such as gas, mobile recharge, DTH, and Electricity bills through the cost-free payment application. Indians 60% of the daily transaction has been recorded through the UPI application. In that 75% of transactions are below one hundred rupees. In India, there are 323 banks living on UPI with 5.9 million transactions had been carried out during May 2022(NPCI UPI, 2022). After the pandemic, many countries have changed the way businesses are carried out, especially cash transactions via mobile phones with secured application support. Numerous research had been done on digital payment, on the bases of adoption and satisfaction (Cavalcanti, Oliveira and de Oliveira Santini, 2022; Sambaombe and Phiri, 2022).

***Enhancing Technology***

In the early days, the mobile phone was used for communication purposes, it is a channel for communication. When technology started to grow communication, the channel had been changed to a business channel. Banking institutions started to invest in application development for providing convenient service for their customer. The world has been working on the improvement of the digital economy, and mobile technologies are occupied with identifying the area to enhance digital technology. Various studies had been conducted based on IT-enabled businesses, and the outcome of those studies indicates that technology-enabled businesses are easy to access and it also reduces stress for the users(Khan et al., 2022; Pobee, 2021).

***Enhancing banking service***

A decade ago, banking services could be rendered through the branch visit. The customer has to visit the branch for services such as checking account balances, fund transfers, bill payments, and purchasing investment products. In today the scenario, an individual customer can do the banking transaction at their convenient place and time, today no need to wait in a long line to deposit or withdraw money. In recent times worldwide researcher's attention turned to mobile banking, to study the predictor variables which influence the user to use mobile banking such as "Customer satisfaction", "Trust", "Digital fraud" and "Adoption and recommendation"(Singh, Sinha and Liébana-Cabanillas, 2020; Szumski, 2020; Zhu et al., 2021; Sambaombe and Phiri, 2022).

***Objectives of the study***

- To examine the effects of age, education, and occupation towards utilisation of cost-free digital payment among users.
- To study the user reaction towards cost-free digital payment in Chennai.

# Review of literature

The review is constructed country-wise based on the mobile payment adoption and service provided by the various applications.

***2.1 Africa:***

A study on "Mobile banking adoption" Behavior intention among youngsters, in-relation to mobile banking based on the technology acceptance model and innovation diffusion theory. The researcher found the variables which influence to adopt of mobile banking technology in west Africa such as "Perceived ease of use", "Perceived usefulness", "Relative advantage" and "Complexity", and the study discover the positive influence on the adoption of mobile banking such as "Ease of use" and "Usefulness"(Owusu et al., 2021).

***2.2 United States:***

A study was carried out based on the concept "Digital payment transactions reduce corruption", in this study corruption has been classified on the bases of the sum amount such as grand corruption and petty corruption. In the case of a large amount, it is named grand corruption and if the bribe is a small amount, then it is called petty corruption. The data for the study was derived from "The global financial inclusion database", "The corruption perception index", and "world development indicators". Based on these data the researcher came to the conclusion still in the digital era cash is king in the corruption world because people use the digital payment for small transactions and purchases, therefore it is a negative significant between digital payment and the reduction of corruption. When digitalization is turning into 100% then we could expect that digitalization would act as a tool to reduce corruption(Setor et al., 2021).

***2.3 European Union countries:***

In 2020 "A study on financial inclusion as an important factor influencing digital payment in EU country", to improve the services of transport in EU countries they adopted digitalization in the ticket payment system, smartphones and speed internet brought the way for contactless smart cards and mobile apps in the transport system. And the factors that influenced the passenger to adopt the technology such as "Internet purchase behavior", "non-cash payment behavior", "Economic level", "Social level", "Personal level", "Psychological", and "culture level" in this research they discover that education level has a positive impact on the adoption of the digitalized transport system. Hence it required digital literacy among the public(Frączek and Urbanek, 2021).

***2.4 India:***

"Mobile banking-based money order for India post" this study was carried out in 2012, the researcher explores the difficulties of sending money orders through the post office in Pune city and how it is beneficial when the post office money order is integrated with the India post system. This study discusses the problem which is faced by the sender of the money order and the research brought the factors that led to integrated service such as "business growth", "Convenience", "Reduced transaction costs", "Social and economic developments", "Transparency in money transactions", "Marketing of products", and "Reduces risk of fraud"(Singh, 2012).

"Financial inclusion through the digitalization of services for well-being" This study reveals that digitalization had changed traditional banking services, such as accessible healthcare, and loan to needy people, these channels penetrate financial inclusion through banking services (Kanungo & Gupta, 2021).

A study on "Demonetization and digitalization: the Indian government's hidden agenda" this study is about the growth of digitalized payment system in India after demonetization, it discloses the scenario of ATM cash withdrawal and the adoption of mobile payment and POS transactions after the demonetization of 1000 and 500 notes in India. Based on Jan 2020 RBI report the researcher found that, 1440.3 million transactions have been done through mobile banking applications including UPI-based systems and there is a drastic decline in cash transactions (Fouillet et al., 2021)

***2.5 Malaysia:***

A study on the "Adoption of cashless payment among Malaysians" this study paves the way to find the adoption and intention to adopt cashless payment in Malaysia, by using moderate effect between dependent and independent variables such as "Performance Expectancy", "Social influence", "Effort expectancy", "facilitating condition" and "Perceived trust". In that except social influence, other variables have a positive significance on adoption and intention to adopt cashless payment. The study concludes thus, the adoption of cashless payment would promote economic growth in Malaysia therefore government and financial service providers should work to build trust among the digital payment users, which its lead to more adoption of the cashless payment system in the country(Zixin et al., 2022a)

***2.6 Gap findings:***

various study has been conducted on digital payment(Lakeman et al., 2021; Zixin et al., 2022b) but user reaction has not been studied by emojis. Therefore, this study employed emojis to study the user reaction toward digital payment. and to study the effects of age, occupation, and education level on utilisation of cost-free digital payment among Chennai users.

# Conceptual framework

### *3.1 Predictor variable*

The predictor variable of this study are age, education qualification, and occupation.

#### *3.1.1 Age*

In this study, the researcher includes age as the predictor variable to analysis the utilisation of digital payment among the users. Young people could easily accept the changes and utilise the benefits of technology. Thus, age is considered as a tool to find the perception towards utilisation among digital payment users.

#### *3.1.2 Education qualification*

In this study, the researcher considers the education level for analysing the utilization of digital payment among the user in Chennai city. Today digital payment platform is utilised for completing tasks within a short span of time. Highly educated users are easily adopting the digital culture (Fouillet et al., 2021). But for low educated level users would take time to adopt the digital culture.

#### *3.1.3 OccupationIn thi*

s study, the researcher uses the occupation to study the perception of utilizing technology among digital payment users.

### *Outcome variable*

The outcome variables of this study are utilisation and user reaction. Ten indicators are used to measure the utilisation and emojis are used to study the user reaction among the user.

### *Utilisation*

How the users are getting benefits from digital payment? Ten indicators had been included for measuring the user's perception on the road to the analysis of the utilization among the digital payment users in Chennai city.

### *User Reaction*

Nowadays people are using stickers and emojis in what's applications and snap etc, to convey their thought and message. Therefore, the researcher decided to collect the user reaction based on five emoji's facial reactions, such as "Frustrated", "disappointment", "Neutral', "Happy", and "extremely happy".

**Figure 1** *Frustrated*

**Figure 2** *Disappointment*

**Figure 3** *Neutral*

**Figure 4** *Happy*

**Figure 5** *Extremely happy*

The researcher frames the eleven statements for examining the user reaction with five emoji reactions (Fig 1-5), there are “Contactless payment”, “Single click payment”, “Highly secured gateway of payment”, “Simple process to download from play store”, “Easy to get back the money in case of payment failure”, “Strong passcode and MPin&OTP in UPI”, “Available in regional language”, “Immediate SMS alert for debit & Credit”, “User privacy is fully protected in UPI”, “Attractive and color full home page”, and “Overall user reaction towards UPI application”.

## Research Methodology

A descriptive research design was done in this research to analyse the user’s reaction and utilisation of cost-free payment platforms among digital payment users in Chennai city. Fifty-six responses have been collected between august and September 2022. The questionnaire method is used for collecting the data for the research.

### *4.1 Research instrument:*

Pictorial techniques had been used for the analysis of the user reaction toward digital payment. In that the researcher employed five kinds of emoji to study the user reaction, such as “Frustrated”, “Disappointment”, “Neutral”, “Happy”, and “Extremely happy”, further the value had been assigned. The least value was assigned for the frustrated emoji and the highest value was assigned for extremely happy. The Five scale liker questionnaire had been used for analysing the utilization of payment methods among the users, such as the highest value for strongly agree and the least value for strongly disagree.

## Data analysis

**Table 1** *Demography profile of the users*

| Measurable variables | Items | Percentage |
|---|---|---|
| Age | 19-25 Years | 21.8% |
| | 26-30 Years | 34.5% |
| | Above 30 | 43.6% |
| | **TOTAL** | **100%** |
| Education Qualification | Up to HSC | 1.8% |
| | UG | 18.2% |
| | PG | 52.7% |
| | Professional | 27.3% |
| | **TOTAL** | **100%** |
| Occupation | Student | 32.7% |
| | Government Employee | 3.6% |
| | Private Employee | 49.1% |
| | Housewife | 7.3% |
| | Self Employed | 7.3% |
| | **TOTAL** | **100%** |
| Income (Annual) | Below 1 lakh | 21.8% |
| | 1 Lakh to 3 Lakhs | 36.4% |
| | 3 Lakhs to 5 Lakhs | 20% |
| | Above 5 Lakhs | 21.8% |
| | **TOTAL** | **100%** |
| Marital Status | Single | 34.5% |
| | Married | 65.5% |
| | **TOTAL** | **100%** |
| Usage of UPI Application | BHIM | **3.6** |
| | Google Pay | **81.8%** |
| | Phone Pay | **9.1%** |
| | Own bank UPI application | **5.5%** |
| | **Total** | **100%** |
| Year of usage of Application | Less than one year | **5.5%** |
| | 1-3 years | **58.2%** |
| | 3-5 years | **29 %** |
| | More than 5 years | **7.3 %** |
| | **Total** | **100** |

**Source:** *Primary Data*

Table 1 denotes the demography profile of the users, from this table it is clear that most of the users are falls above 30 the age group, most of the users are PG degree holders, and they are working in the private sector, their income level falls under one lakh to three lakh income slabs. Through the research, it reveals that the majority of the users are married, and most of the users stick to the google pay application since it carries out the cost-free transaction. The user experience with digital payment platforms is between one year to three years. And it is the evidence that pandemic had pushed every individual into the digital world for monetary transactions.

### *4.3 Path Analysis:*

**Table 2** *Variable classification*

| Observed, exogenous variable | Observed, endogenous variable | Unobserved exogenous variable |
|---|---|---|
| "Age" | "Available 24*7" | e1 |
| "Education qualification" | "Link bank account" | e2 |
| "Occupation" | "Change management problem" | e5 |
| | "Utility Payment" | e6 |
| | "Easy payment in the online purchase" | e7 |
| | "User-friendly Scan pay" | e8 |
| | "Reward and referral" | e9 |

**Table 3** *Variable counts*

| | |
|---|---|
| "Variables in the model" | 17 |
| "Observed variables" | 10 |
| "Unobserved variables" | 7 |
| "Exogenous variables" | 10 |
| "Endogenous variables" | 7 |

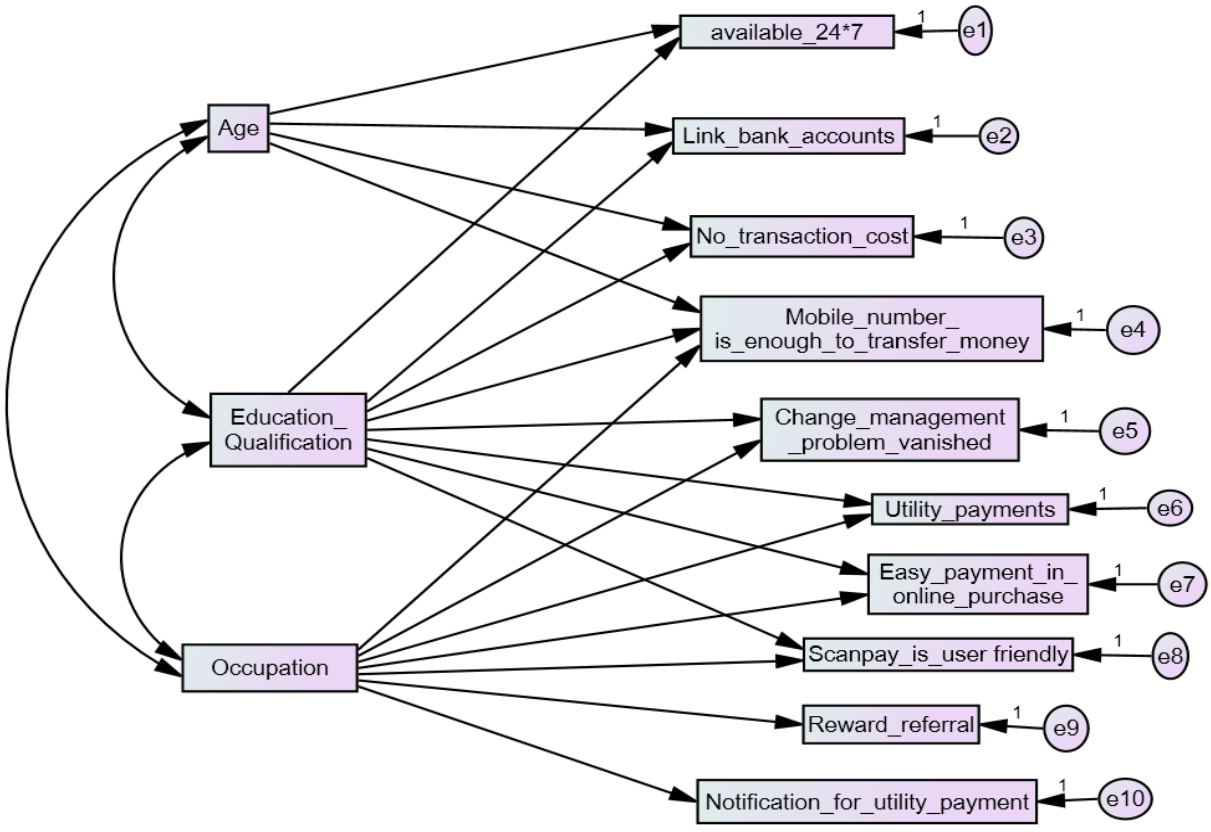


**Figure 6** *Utilisation Proposed Model*

The researcher builds the Figure.6 proposed model with the help of a previous study, in which user benefit has been derived (Appukuttan Amrita Vishwa Vidyapeetham, 2019). Such as "24*7 Availability", "Easy linking of bank accounts", "No transaction cost", "Mobile number is enough to transfer money", "Change management problem vanished", "Easy utility payment", "Easy payment in online purchase", "Scan pay is user friendly", "Reward and referral" and "Notification for utility payment".

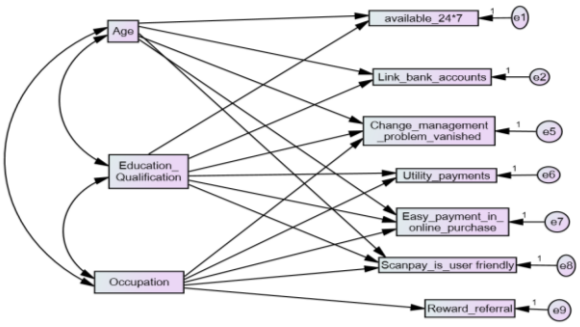


**Figure 7** *"Utilisation" Proved model*

According to the Figure 7 "utilisation" proven model, the user perception towards Utilisation of cost-free mobile payment is examined through age, education qualification, and occupation. And it also proved that exogenous variables have direct and indirect effects on the endogenous variable.

**H01**: There is no direct influence on the utilisation of cost-free mobile payment among users with age, education qualification, and occupation.

**Table 4** *Path Analysis Regression Weight Of Utilisation Of Cost-Free Digital Payment*

| Endogenous variable | Path | Exogenous variable | Estimate | S.E | C.R | P Value |
|---|---|---|---|---|---|---|
| Available 24*7 | ← | Age | 0.755 | 0.087 | 8.64 | 0.000 |
| Link bank account | ← | Age | 0.801 | 0.1 | 8.025 | 0.000 |
| Available 24*7 | ← | Education qualification | 0.005 | 0.08 | 0.66 | 0.94 |
| Link bank account | ← | Education qualification | 0.218 | 0.091 | 2.389 | 0.017 |
| Vanished change management problem | ← | Education qualification | 0.067 | 0.7 | 0.957 | 0.339 |
| Easy to pay utility payment | ← | Education qualification | 0.016 | 0.095 | 0.170 | 0.865 |
| Easy payment in the online purchase | ← | Education qualification | 0.162 | 0.96 | 1.67 | 0.094 |
| User-friendly Scan pay | ← | Education qualification | 0.011 | 0.097 | 0.113 | 0.91 |
| Reward and referral | ← | Occupation | 0.606 | 0.058 | 10.409 | 0.000 |
| User-friendly Scan pay | ← | Occupation | 0.300 | 0.067 | 4.46 | 0.000 |
| Easy payment in the online purchase | ← | Occupation | 0.345 | 0.059 | 5.813 | 0.000 |
| Easy to pay utility payment | ← | Occupation | 0.368 | 0.066 | 5.589 | 0.000 |
| Vanished change management problem | ← | Occupation | 0.383 | 0.066 | 5.843 | 0.000 |
| Vanished change management problem | ← | Age | 0.311 | 0.072 | 4.321 | 0.000 |
| Easy payment in the online purchase | ← | Age | 0.384 | 0.100 | 3.834 | 0.000 |
| User-friendly Scan pay | ← | Age | 0.197 | 0.067 | 2.944 | 0.003 |

**Source:** *AMOS Output*

Table 4 states, when the age of the user increased by one step then the utilization of 24*7 availability goes up by 77.5%(0.775), as result, at the 1% level of regression weight for the age had triggered for utilizing 24*7 availability of cost-free payment application, which is substantially different from zero. Followed by availability, benefits in linking bank accounts are also significant at a 1% level of significance. When occupation goes up by one percent then the Reward & Referral, user-friendly scan pays, Easy payment online, utility payment, and vanishing of change management problem go up by three to sixfold above, it shows the impact of occupation on the Utilisation of cost-free payment application at 1% level of significance. Whereas when the education level goes up by one percent then the benefit of linking a bank account with cost-free payment applications goes up by 21.8% (0.218). at a 5% level of significance.

**Table 5** *Direct Effect on utilisation*

| | **Occupation** | **Education Qualification** | **Age** |
|---|---|---|---|
| Reward and referral | .817 | .000 | .000 |
| Scan and pay are more user friendly | .608 | .015 | .256 |
| Easy payment in the online purchase | .645 | -.211 | .459 |
| Easy to pay utility payment | .781 | .024 | .000 |
| Vanished change management problem | .545 | .067 | .283 |
| Link bank account | .000 | .218 | .733 |
| Available 24*7 | .000 | .007 | .884 |

**Source:** *AMOS output*

***4.3.1 Positive effect:***

Table 5 shows that occupation and age are absolutely positive effects on the utilization of cost-free digital payment.

- There are five positive effects on occupation among users Utilisation of mobile payment. The most triggering factors among the five-factor are “Reward and referral”. The direct positive effect of “Occupation” on “Reward and referral” is 0.817, when the level of occupation goes up by 1% then “reward and referral” goes up by 81.7%.
- In education qualification, there are four positive effects of education level on the user’s Utilisation. The most influenced factor by education qualification is the “Linking of bank account” and “Vanished change management problem”. The direct positive effect of education qualification on the “link of bank account” is 0.218, when the level of education is increased by one percent “link of bank account” is increased by 21.8 %. When the education level is increased by one percent then the “Change management problem” is increased by 6.7%.
- In age, there are five positive effects of utilization among the users, in that the most influenced factor is “available 27*7”. When the age level is increased by one percent then the cost-free payment application availability in 24*7 is increased by 88.4%., link bank account increased by 73.3%, and easy payment in online purchases is increased by 50%.

***4.3.2 Negative effect:***

- Only one negative effect in the utilisation of cost-free payment applications is the ease of payment in online purchases. When the education level goes up by one percent then the ease of payment in online purchases goes down by 21.1%.

***4.3.3 No effect:***

- There is no direct effect of occupation on "linking of bank account", and "available 24/7".
- There is no direct effect of education qualification on the "Reward and referral".
- There is no direct effect of age on the "easy to pay utility" and "Reward and referral".

## Hypothesis

"Null Hypothesis: The Hypothesis of utilisation model has a good fit"
"Alternative hypothesis: The Hypothesis of the utilisation model does not have a good fit"

**Table 6** *Model Fit summary of utilisation*

| Parameters | Research Model value | Suggested value |
|---|---|---|
| Number of statements before running the model | **10** | - |
| P-Value | 0.07 | "Greater than 0.05" |
| Chi-square | 5.36 | "Greater than 0.01" |
| G.F.I | 0.962 | "Greater than 0.9" |
| A.G.F.I | 0.912 | "Greater than 0.9" |
| C.F.I | 0.905 | "Greater than 0.9" |
| RMSEA | 0.00 | "Less than 0.06" |
| Number of statements after running the model | 7 | - |

**Source:** *Amos output*

The above table 6 shows p-value is 0.07, which is larger than 0.05, indicating a perfect fit, according to the preceding table. it is an outstanding fit because the GFI value is (0.962) and the Adjusted goodness of fit index value is 0.912 both are larger than 0.9. the comparative fit index value is 0.905 which indicates a perfect match and the root means a square error of approximation value is less than 0.05, indicating that the model is perfectly fit. Hence the null hypothesis is accepted.

**$H_0$:** There is no significant difference among digital payment users toward user reaction.

**Table 7** *Friedman test for significant differences among digital payment users towards user reaction*

| User reaction | Mean Rank | Chi-Square value | P value |
|---|---|---|---|
| Contactless payment | 7.07 | 25.69 | 0.000 |
| Single click payment | 7.57 | | |
| Highly secured gateway of payment | 4.76 | | |
| Simple process to download from the play store | 7.42 | | |
| Ease to get back the money in case of payment failure | 3.79 | | |
| Strong passcode and MPin & OTP in UPI | 6.15 | | |
| Available in regional language | 3.77 | | |
| Immediate SMS alert for debit & Credit | 6.74 | | |
| User privacy is fully protected in UPI | 5.38 | | |
| Attractive and colour full home page | 5.56 | | |
| Overall user reaction towards UPI application | 7.78 | | |

The above table 7 displays the P value, which is less than 0.01, the null hypothesis is rejected at a 1% level of significance. Hence concluded that there is a significant difference among mean ranks of users' reactions. Through the Friedman test, it is clear that overall user reaction is positive towards the UPI application, the users are enjoying the single-click payment method, and it carries a simple process to download from the play store. Despite of the ease process, due users are frustrated with certain features such as UPI is not available in the regional language, and it is not easy to get back the money that is wrongly debited from the user account.

***Discussion and findings***

In India, after the pandemic people adopted digital payment, the pandemic is seen as an opportunity to utilize digital tools for payment transactions. Like India, other countries also adopting the digital culture in the payment world. Thailand is the evidence for adopting a digital payment system, the most utilized cost-free payment tool in "Thai" is "Promptpay", this "Promptpay" is one of the tools which derives the 'Thai" economy into a cashless economy. And the Thai government had built a computer emergency response team to manage cybersecurity to protect and promote digital usage(Yakean, 2020).

***Implementations and suggestions***

In this study, the researcher found that the majority of the users are using a third-party payment application. This situation needs to be changed, strong security would build trust among the user, thus trust leads the users to utilize digital payment in the most productive way therefore it promotes the traditional economy into a cashless economy.

Users are disappointed with the gateway of payment in cost-free payment applications therefore this study suggested improving the protected gateway for payment systems. UPI systems such as google pay and phone, pay are carrying a four-digit pin code as a passcode for transactions, user is disappointed and frustrated with the current UPI system passcode, thus this study emphasizes generating a strong passcode system for a cost-free UPI system. This study describes that literacy plays a vital role in adopting digital payment. therefore, educating the non-users about digital payment would increase the usage of the UPI system in India. When comes to Privacy protection in UPI application the users are not sure whether their data are protected or not, through this study the researcher found that user's reaction is neutral towards the protection of data thus this study stresses the government to create strong highly secure payment application which gains the user's trust. and Indian-based banks should create a payment application like the third party does, since BHIM and G pay both have similar features but most of the users are attached to G pay, this scenario needs to be changed.

***Conclusion***

Using digital payment for transactions would help to save money, people are excited to spend money when it is available in paper cash mode in their hands, therefore people tend to save their money when it deals with absolutely in digital mode. When the users paid the amount in the digital mode, they avail cash back and rewards & points while using the digital mode. The benefits are more in the Unified payment interface system (UPI) and users are utilising it in the finest manner. Digital payment users are extremely happy with digital payment applications. The growth of information technology is a sign of implementing new and strong payment applications, thus increasing digital literacy will lead the system into paperless transactions.

***Scope for further study***

This study is based on Chennai users alone with limited response therefore in the future, this study could be expanded all over the state or country to improve the quality of the digital

payment service. Accessibility, awareness, and satisfaction among the users of digital payment could be done based on the pictorial presentation tool. A study based on a newly launched digital payment application could be carried out in a future study. Any kind of study for digital payment would lead the country into the digital path.

## Declaration of competing interest

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***CRediT authorship contribution statement***

Ms. Parvathy V: Conceptualization, investigation, data collection & analysis, and writing – original draft.

Dr.D. Durairaj: Supervision and validation.

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