THINK INDIA JOURNAL

ISSN:0971-1260

Vol-22-Issue-10-November-2019

An Analysis Of New Dimensions Of Mobile Payments System In Service Sector

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Abstract:

Demonetization of Indian currency leads the acceptance of digital payment in India. Digitization and Go cashless scheme has been extensively pushed by the Indian government to regularize and smoothen the cash transaction after demonetization. The demonetization consequences give extraordinary growth in digital payment such as E-banking, Mobile banking, Card transaction etc. Unified Payments Interface (UPI) is one of the fastest growing digital payment system through which a user can both send and receive money through a Virtual Payment Address (VPA).Uniqueness of UPI over other digital payment methods like 24*7 and 365 days availability, Easy and convenient to use and secure gateway attracts the customer's of service sector.

This research was mainly focused to study the gender perception (service sector) about various dimensions of UPI like Adoption, Speed & availability, Security, Ease of Transaction, Convenience, Traceability and Satisfaction. For this research primary data was collected through structured Questionnaire contains 5 point Likert scale from service sector and secondary Data collected from Government Reports, Website etc.

This research concludes with many aspects of use and adoption of UPI through comparison between gender perceptions in service sectors. The results of this study add to our knowledge about acceptation of UPI and its usefulness in cashless and immediate transactions that influence the service sectors customers. The research concluded that customer of service sector is more swing towards the adoption and usage of UPI and there will be no difference in both male and female in adoption and use of UPI.

THINK INDIA JOURNAL

ISSN:0971-1260

Vol-22-Issue-10-November-2019

Keywords: UPI, VPA, Digital Payment, Mobile Payment

Introduction:

India is rapidly moves towards the direction of Digitization. After the proclamation of Demonetization by PM Mr. Narender Modi on 08 November 2016 it created a massive expansion of opportunity for digital payment in India. Thus, the digital Payment companies take hold of the chance with both the hands to spread out their market share. Demonetization has presented a distinctive platform for acceptance of digital payment, as a substitute to cash for Indian consumers.

Adoption of cashless transaction has been extensively pushed by Prime Minister Mr. Narendra Modi as part of government reforms after demonetization. The demonetization consequences give extraordinary growth in digital payment. By a report generated by IAMAI Media, increase in digital payment services in 2018 had shown a growth of 115 US dollars.

There are number of Service providers which are leading to the growth of digital payment and conversion from cash economy to cashless economy. These providers comprises of internet connectivity on smart phones, non-banking financial institution facilitating digital payment, one touch payment, rise of financial technology sector and push by government either by giving incentives or tax breaks. These all factors are generating positive atmosphere for development of digital payment in India.

Conceptual Framework:

- **History-**

  Over a decade India growing fast in the usage of Digital Payments options. With the increase in Internet usage, Digital payment is also come into existence. The payment firstly shifted from the traditional payment into Electronic Payment through Debit and Credit cards, E- Payments options through E- Banking and then further shifted to Mobile Payment through the usage of M –Payment technologies.

  Digital payment is also coming in growing stage by the support of Government. After demonetization Indian Government work on Cashless Transaction Through their Campaign known as “Digital India- Power to Empower”.

The Expansion of Cashless India or Digital India is majorly based on four factors:

- **Cash being expensive**: Though there are several perceived benefits of transacting in cash (such as instantaneous settlement, relative anonymity, and the notion of security

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associated with holding physical value), there are several latent and implicit costs associated with cash.

- **Advancement in technology:** Technology has been advancing at a rapid pace to deliver robust, secure and convenient payments solutions. This enables rapid delivery of payment services to large sections of the population.

- **Economical:** Digital payments allow form services to be delivered at lower costs, afford greater scalability and greater ease of access. This in turn, helps in fostering economic growth and financial inclusion.

- **Government initiatives**: Initiatives taken by the government have created a catalytic environment for the greater proliferation and growth of digital payments.

Digital Payment was come into existence from 1980's i.e. it is not a current emerging technology; the only development is in the different technologies used for conducting the digital payments. The following diagram shows the growing stages of Digital payments:-

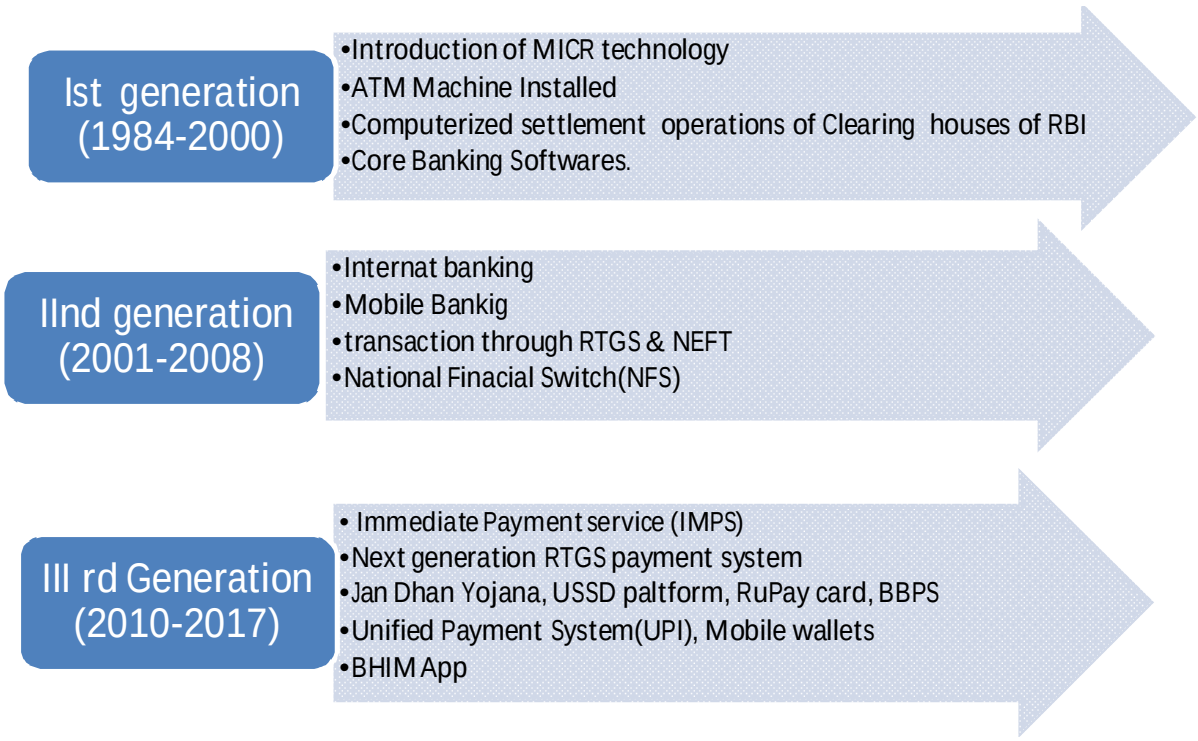

Figure 1:

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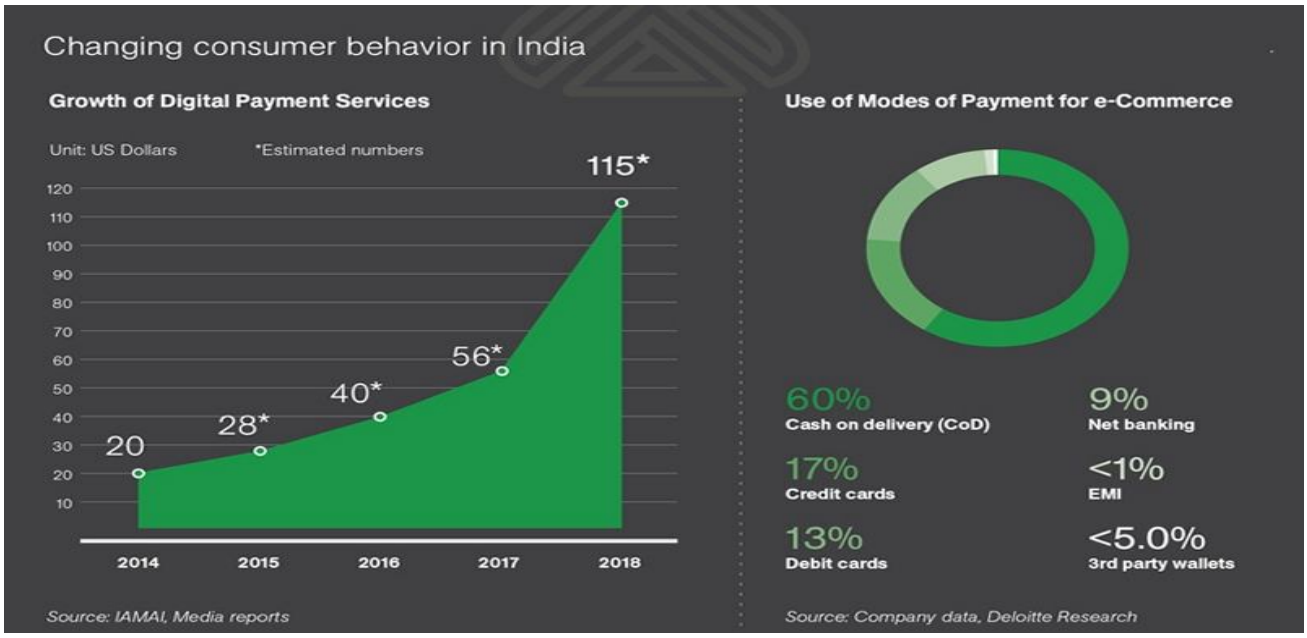

Source: https://www.india-briefing.com/news/growth-of-digital-payments-systems-in-india-14797.html/

Introduction of UPI (Unified payment Interface):

Unified Payments Interface (UPI) is a digital payment system through which a user can both send and receive money through a Virtual Payment Address (VPA). The money will be directly debited from the customer's bank account. It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience.

National Payments Corporation of India (NPCI), the umbrella organization for all retail payment systems in India has taken up a new initiative of implementing "Unified Payment Interface" to simplify and provide a single interface across all systems. Banks have started to upload their UPI enabled Apps on Google Play store from 25th August, 2016 onwards.

Uniqueness of UPI than other digital payment methods:

- Immediate money transfer through mobile device round the clock 24*7 and 365 days.
- Single mobile application for accessing different bank accounts.
- Single Click 2 Factor Authentication – Aligned with the Regulatory guidelines, yet provides for a very strong feature of seamless single click payment.

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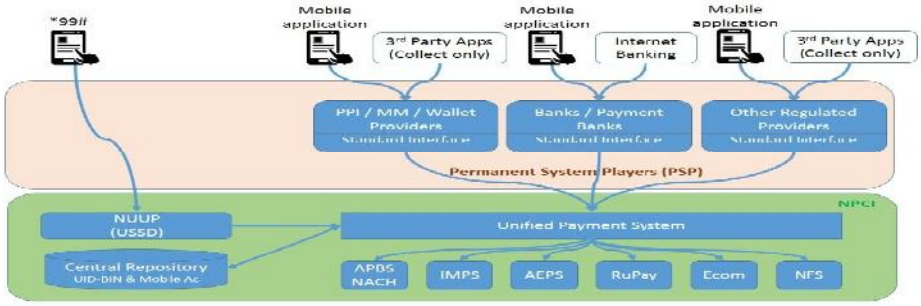
- Virtual address of the customer for Pull & Push provides for incremental security with the customer not required to enter the details such as Card no, Account number; IFSC etc.
- Bill Sharing with friends.
- Best answer to Cash on Delivery hassle, running to an ATM or rendering exact amount.
- Merchant Payment with Single Application or In-App Payments.
- Utility Bill Payments, Over the Counter Payments, Barcode (Scan and Pay) based payments.
- Donations, Collections, Disbursements Scalable.
- Raising Complaint from Mobile App directly.

Technical Architecture of UPI:

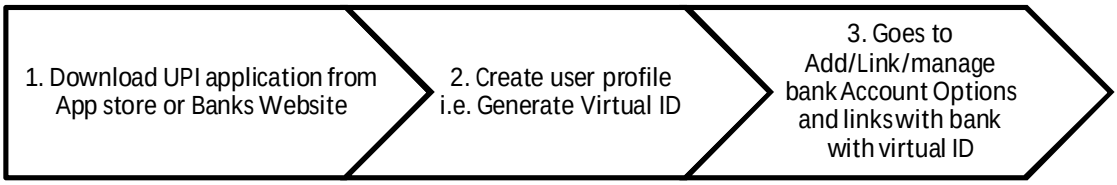
Figure 2:



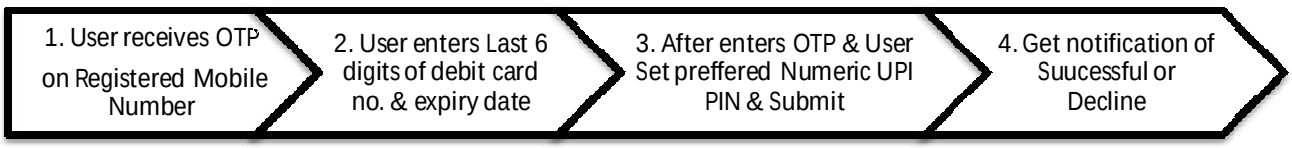
*Source: http://upipayments.co.in/upi-payment-system

Process of UPI Access:

1. **UPI application Registration Process:**



2. ***Create UPI – PIN:***



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Different Transaction done through UPI:

A. PUSH – sending money using virtual address

- User logs in to UPI application
- After successful login, user selects the option of Send Money/Payment
- User enters beneficiary's/Payee virtual id, amount and selects account to be debited
- User gets confirmation screen to review the payment details and clicks on Confirm
- User now enters UPI PIN
- User gets successful or failure message

PULL – Requesting money:

- User logs in to his bank's UPI application
- After successful login, user selects the option of collect money (request for payment)
- User enters remitters/payers virtual id, amount and account to be credited
- User gets confirmation screen to review the payment details and clicks on confirm
- The payer will get the notification on his mobile for request money
- Payer now clicks on the notification and opens his banks UPI app where he reviews payment request
- Payer then decides to click on accept or decline
- In case of accept payment, payer will enter UPI PIN to authorize the transaction
- Transaction complete, payer gets successful or decline transaction notification
- Payee/requester gets notification and SMS from bank for credit of his bank account

Different Apps used UPI Feature in India:

PhonePe	Paytm	BHIM app	MobiKwik
Airtel Payments Bank	Google Tez	Uber	Chillr
SBI Pay	iMobile	Axis Pay	BOB UPI

Literature Review:

With UPI there is no need of any other payment app at all. On the other hand if one wants to keep a particular mobile wallet UPI could enable the interoperability of wallets allowing users to transfer funds from one wallet to another. Excitement over the growth of mobile payments perpetuated the phenomenon of disconnected Islands and disjoints experiences. Since RBI has

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allowed banks to become PSPs (Payment Service Providers) mobile wallets are cut of the picture at the moment. So if mobile wallets represent any threat to proprietary solutions (banks), UPI comes as a boon for them. (Kate, 2016).

UPI has made digital transaction for individuals as easy as sending text messages. service is available 24X7, not like RTGS or NEFT which don't work on holidays or during non-banking hours. This will bring enormous efficiency in the system and help India become a truly cashless economy (Kakade & Veshne, 2017).

A study concludes that UPI is a tool with compatible features that can make monetary transactions easy and affordable to the customers though it is difficult to sideline the challenges. A strong Aadhar platform (UID) combined with statistics for the country pertaining to increased financial inclusion, Smartphone adoption and telecom subscription indicate positive prospects for UPI whereas competition from mobile wallets and possible cases of failure from banks to overcome technical errors especially relating to the front-end platform designed by them may negatively impact the scope of this innovative payment tool (Thomas and Chatterjee, 2017).

A Research Concluded that, Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. UPI is a payment system that allows money transfer between any two bank accounts by using a smart phone. UPI allows a customer to pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFSC code, or net banking/wallet passwords. The UPI seeks to make money transfers easy, quick and hassle free (Mohapatra, 2017).

Objective:

1. To study the perception of customers of service sector towards UPI transaction.

2. To study the Gender's attitude towards the different dimensions of UPI Transactions in service sector.

Research Methodology:

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Data Collection- Primary Data Collected through structured Questionnaire contains 5 point Likert Scale (Strongly Disagree to Strongly Agree) contains statements regarding UPI adoption, satisfaction, security, traceability etc from service sector.

Secondary Data collected from Government Reports, Website etc.

- **Scale & Tools for Analysis**

  Nominal Scale was used in the study to import the collected responses in SPSS 20. for Objective 1 Frequency analysis tool was used & for Objective 2, Cronbach's Alpha test was used to find the reliability of the data. In result of which Independent T- test statistical tool was used for comparison between Male & Female for analysis and interpretation of results.

- **Hypothesis:**

  6 Null hypotheses have been framed with each of the dimensions of UPI are as follows:

Table 1: Hypothesis

Hypothesis	Statements
H_{01}	There is no Significant difference exist for Adoption dimension of UPI between Male and Female.
H_{02}	There is no Significant difference exist for Speed & Availability dimension of UPI between Male and Female.
H_{03}	There is no Significant difference exist for Security dimension of UPI between Male and Female.
H_{04}	There is no Significant difference exist for Ease of Transaction dimension of UPI between Male and Female.
H_{05}	There is no Significant difference exist for Traceability dimension of UPI between Male and Female.
H_{06}	There is no Significant difference exist for Satisfaction dimension of UPI between Male and Female.

Analysis & Hypothesis Testing:

A) Analysis

Figure 3: Demographic Distribution of Gender

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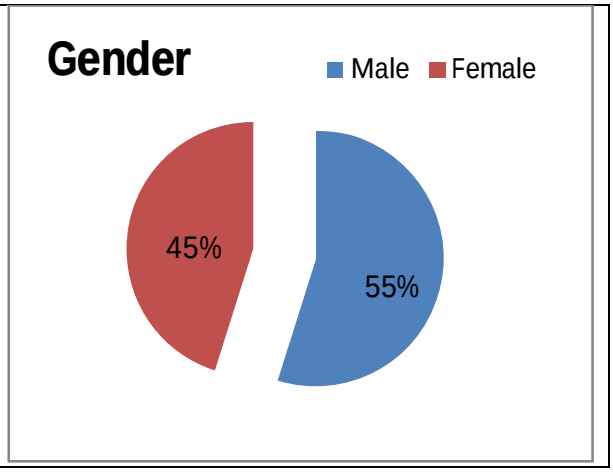
Gender	Total No of Respondents	Percentage
Male	51	55
Female	42	45
Total	93	100



As the government stimulates the use of cashless services and acceptance of various payment applications (UPI APPS) by the customers, leads us to find out some important dimensions which are playing important role in Usage or acceptance of UPI.

We have circulated multiple choice questions to find out customer perception towards use of UPI services and grouped them in some heading like adoption, convenience, security.

Analysis of Objective 1-

Table 2:Frequency analysis Distribution

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Q1	8.6	6.5	22.6	32.3	30.1
Q2	2.2	2.2	19.4	57.0	19.4
Q3	0	2.2	8.6	61.3	28.0
Q4	0	0	13.4	49.5	16.1
Q5	5.4	0	19.4	54.8	20.4
Q6	4.3	7.5	30.1	47.3	10.8
Q7	2.2	12.9	40.9	35.5	8.6
Q8	7.5	21.5	35.5	25.8	9.7
Q9	6.5	22.6	33.3	33.3	4.3
Q10	4.3	29.9	14.0	40.9	11.8
Q11	0	4.3	32.3	51.6	11.8
Q12	0	7.5	7.5	68.1	16.1

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Q13	2.2	10.8	24.7	41.9	20.4
Q14	10.8	10.8	34.4	34.4	9.7
Q15	0	18.3	48.4	28.8	7.5
Q16	8.6	6.5	21.5	37.6	25.8
Q17	0	7.5	19.4	52.7	20.4
Q18	2.2	11.8	19.4	37.6	29.8

Analysis of Objective 2-

Cronbach's Alpha test Result: Reliability test in SPSS 20. Result in 0.849, which is higher than 0.7 acceptable range. So the data is appropriate and found reliable for testing the hypothesis.

Table 3: Reliability Statistics		
Cronbach's alpha	**Cronbach's alpha based on Standarized item**	**N of item**
.849	.847	25

B) Hypothesis Testing

After applying Independent T-test between Male & Female for different dimensions of UPI the following are the results:

Hypothesis 1: H_{01} There is no Significant difference exist for Adoption dimension of UPI between Male and Female.

$$\text{i.e. } H_0 : \mu_1 = \mu_2$$
$$H_A : \mu_1 \neq \mu_2$$

The calculated p value of 2-tailed test was 0.464. Since the p- value > 0.05(Tab. value), in that case null hypothesis was accepted and concluded that there is no significant difference exists for male & Female in Service Sectors at 5% significance level. Thus, conclude that both Male and Female equally adopted UPI services.

Hypothesis 2: H_{02} There is no Significant difference exist for Speed & Availability dimension of UPI between Male and Female.

$$\text{i.e. } H_0 : \mu_1 = \mu_2$$

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$$H A: \mu 1 \neq \mu 2$$

The calculated p value of 2-tailed test was 0.648. Since the p- value > 0.05(Tab. value), in that case null hypothesis was accepted and concluded that there is no significant difference exists for male & Female in Service Sectors at 5% significance level. Thus, conclude that both Male and Female have equal experience Speed & Availability dimension of UPI services.

Hypothesis 3: H_{03} There is no Significant difference exist for Security dimension of UPI between Male and Female.

$$\text{i.e. } H 0 : \mu 1 = \mu 2$$
$$H A: \mu 1 \neq \mu 2$$

The calculated p value of 2-tailed test was 0.071. Since the p- value > 0.05(Tab. value), in that case null hypothesis was accepted and concluded that there is no significant difference exists for male & Female in Service Sectors at 5% significance level. Thus, conclude that both Male and Female have equal experience on Security dimension of UPI services.

Hypothesis 4: H_{04} There is no Significant difference exist for Ease of Transaction dimension of UPI between Male and Female.

$$\text{i.e. } H 0 : \mu 1 = \mu 2$$
$$H A: \mu 1 \neq \mu 2$$

The calculated p value of 2-tailed test was 0.214. Since the p- value > 0.05(Tab. value), in that case null hypothesis was accepted and concluded that there is no significant difference exists for male & Female in Service Sectors at 5% significance level. Thus, conclude that both Male and Female have same attitude towards Ease of Transaction dimension of UPI services.

Hypothesis 5: H_{05} There is no significant difference exists for Traceability dimension of UPI between Male and Female

$$\text{i.e. } H 0 : \mu 1 = \mu 2$$
$$H A: \mu 1 \neq \mu 2$$

The calculated p value of 2-tailed test was 0.204. Since the p- value > 0.05(Tab. value), in that case null hypothesis was accepted and concluded that there is no significant difference exists for male & Female in Service Sectors at 5% significance level. Thus, conclude that both Male and Female have same attitude towards Traceability dimension of UPI services.

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Hypothesis 6: H_{06} There is no significant difference exists for Satisfaction dimension of UPI between Male and Female.

$$\text{i.e. } H_0 : \mu_1 = \mu_2$$
$$H_A: \mu_1 \neq \mu_2$$

The calculated p value of 2-tailed test was 0. 056. Since the p- value > 0.05(Tab. value), in that case null hypothesis was accepted and concluded that there is no significant difference exists for male & Female in Service Sectors at 5% significance level. Thus, conclude that both Male and Female have same attitude towards Satisfaction dimension of UPI services.

Findings:

The Discussion of frequency analysis Distribution for different Dimensions are as under-

1. **Adoption of UPI services** (Generated by Survey): this Dimension will come from the response of following questions. Out of 93 respondent:
   a. 85% respondents Responds "UPI as a convenient way of Payment".
   b. 95.8% respondents have positive view that "UPI Facilities transfers and payments"
   c. 97.9% respondents have positive response to the statement that "Cashless payments options gives you more Discounts/cash back rewards".
   d. 79% respondents are agree to the point that "Provides flexibility and easy tracking of spending".

2. **Speed and availability** : when asked about availability and speed out of 93 respondents:
   a. 94.6% respondents found that " UPI,USSD and E-Wallets systems are available 24*7 as compared to RTGS and NEFT"
   b. 88.2% respondent agreed that they can use "UPI,USSD and E-Wallets systems at any point or location with their Smartphone only"
   c. 85% respondent agreed that, "UPI services do not require adding beneficiary to transfer money".
3. **Security:** it is the biggest concern of any virtual system, when deals with financial security customer generally become too much aware. So on analyzing this aspect we have found that :
   a. 71% respondents have positive response towards UPI, they agreed " UPI on provides end to end strong security and data protection as compare to Net banking and Card payments".

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b. 70.9% respondents have positive response to the statement that "The virtual address method of UPI does not reveal your bank accounts detail".
c. 66.7% respondent use "E-wallet or other UPI services only for small payments".

4. **Ease of transaction** : Out of 93 respondents
   a. 95.7% respondents have positive response to the statement that "Transfer of the funds from bank account to virtual account and vice versa is easy".
   b. 91.7% respondents get "Instant effect of transaction through UPI system as compare to Bank (online Transaction)".
   c. 87% respondents gives Positive response that "UPI system is an easy means of payments and transfers.

5. **Traceability:** Out of 93 respondents
   a. 78.5 % of respondents Agrees that "UPI system would not like to reveal information about source of income".
   b. 84.7 % respondents are also agreed that "if there is an error Tracing it could be very complex with UPI".

6. **Satisfaction of UPI :**
   a. 84.9% respondent state UPI works wonderfully.
   b. 92.5% respondent feels that , UPI system stimulates use of cashless transactions
   c. 86.8% respondent will use it in future and suggest other to use it also.

Table 4: Findings of T- test Hypothesis

Hypothesis	Statements	P Value	Decision
H_{01}	There is no Significant difference exist for Adoption dimension of UPI between Male and Female.	.464	**Accepted**
H_{02}	There is no Significant difference exist for Speed & Availability dimension of UPI between Male and Female.	.648	**Accepted**
H_{03}	There is no Significant difference exist for Security dimension of UPI between Male and Female.	.071	**Accepted**
H_{04}	There is no Significant difference exist for Ease of Transaction dimension of UPI between Male and Female.	.214	**Accepted**
H_{05}	There is no Significant difference exist for Traceability dimension of UPI between Male and Female.	.204	**Accepted**

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H_{06}	There is no Significant difference exist for Satisfaction dimension of UPI between Male and Female.	.056	**Accepted**

The Result of the table shows that there is no significance difference exist for Adoption, Speed & availability, Security, Ease of Transaction, Convenience, Traceability and Satisfaction between Male and Female i.e. this indicates that both male and female of Service Sector customer perceive UPI in similar way.

A report generated by ASSOCHAM, India In 2017 revealed that- "Currently about 74 crore debit and credit cards are being used, while about half a billion population is using internet, there are 102 crore mobile phones, 110 crore Aadhar and more than 20 crore Jan-Dhan accounts, so the complete ecosystem has already been put in place for using digital payment mode. The number of digital financial transactions made through Unified Payments Interface (UPI) and Unstructured Supplementary Service Data (USSD) mode has grown exponentially by 3,574 per cent and 10,603 per cent respectively till 18th January 2017".

Conclusion:

UPI developed the m-payment technology by facilitating mobile phone to be used as a main payment device for giving and accepting payments. In contrast to all of payment systems it can be say that UPI is the most advanced payment system in the world.UPI payment system allows money transfer between any two bank accounts by using a smart phone. It allows a customer to pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFSC code, or net banking/wallet passwords. It aims to simplify and provide a single interface to money transfers easy, quick and hassle free. These features of UPI motivates the respondents of service sectors to adopt the tool and the above study revealed that there is no significant difference found between the gender towards the different dimensions of UPI i.e adoption, speed and availability, security, ease of transaction and traceability. The use of smart phones, the availability of an online verifiable identity, universal access to banking and the introduction of biometric sensors in phones will proactively encourage UPI Transactions and findings revealed that the respondent have positive attitude towards the UPI transaction for ushering in a less-cash society in India.

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