

# E-Services In Indian Commercial Banks Customers Response - An Empirical Study

Dr. R.K. Uppal

*Director Major Research Project*

[rkuppal\\_mlt@yahoo.com](mailto:rkuppal_mlt@yahoo.com)

**Abstract:** *The present paper analyzes the perceptions of the bank's customer regarding e-banking services. The survey was conducted in Ludhiana district of Punjab in October, 2020. The customers of almost all the bank groups exhibit their perceptions in favour of e-delivery channels. Among all the e-delivery channels ATM is the most preferred e-delivery channel. Age-wise, upto 25 and 35-45 age groups more preferred e-delivery channels. Similarly professionals more preferred e-services. Chi-sq test used to know difference in the opinion of the three bank group's customers. The paper concludes suggesting some strategies to enhance the e-banking services.*

**Keywords:** *Individual e-channel, Overall e-channel, Implications and Strategies Type of Paper: An Empirical Study*

## 1. INTRODUCTION

Modern technology has transformed the functioning of business. It has bridged the gaps in terms of the reach and the coverage of systems and enabled better decision-making based on latest and accurate information, reduced cost and overall improvement in efficiency. In the Indian context, the financial sector, especially the banking sector has been a major beneficiary from the inroads made by IT. Many new processes, products and services offered by banks and other financial intermediaries are now IT centered. E-delivery channels are also a gift of IT. Now-a-days many banks are providing the services of e-channels like ATMs, I-banking, M-banking, Tele-banking, Debit cards, Credit cards etc. Most of the initiatives regarding e-channels are aimed at providing better and more efficient customer service by offering multiple options to the customers. These e-channels have positive impact on the profitability of the bank groups. With the rapid improvements in technology and faster growth of e-channels, society has become more sophisticated than in olden days. We have a better educated, better informed, better organized and better paid workforce than existed in olden days. With the help of e-channels, banking system has become more efficient with efficient e-payment system. This situation has resulted in more competition among banks and stimulated more technological developments. Customers are getting many benefits from e-services like balance enquiry, request for services, issuing instruction etc from anywhere in the world are possible, any time banking, convenience acts as a tremendous psychological benefit all the time, cash/card free banking through PC banking, brings down "cost of banking" to the customer over a period of time, cash withdraw from any branch, on-line purchase of goods and services including on-line payment for the same. With so many benefits from e-services, it is a need of an hour to study the satisfaction level of customers from these e-services. This paper studies the satisfaction of the customers from different e-services. The following are the e-delivery channels available for the customers of banks.

## **ATM**

ATM is a device that allows customers who have an ATM card to perform routine banking transactions without interacting with a human teller. ATMs are currently becoming popular in India that enables the customers to withdraw their money 24 hours, 9 days, 7 days a week. ATM sharing system through proper connectivity and switching technology provides the first real opportunity to serve the customers on a nation wide basis. International ATM sharing already a reality in North America and Europe seems likely to add a whole new dimension of convenience for both businessman and tourist traveling abroad. The ATM sharing in India across banks started with SWADHAN-Shared Payment Network System in Mumbai.

### **Benefits to Customers**

- 24 hours access availability
- Less time for transactions
- Acceptability of card across multiple bank ATMs, even foreign tourists can access Maestro/VISA ATMs.
- Plethora of services available in addition to cash dispensing.

### **Benefits to Banks**

- Cost of setting up ATMs much lower than the branch.
- Migration of the routine transactions to the ATMs frees the bank's staff for more productive work
- ATMs serve as the crucial touch points for cross selling of bank's products
- Enables the bank to display products on the screen and serves as a media for publicity for the bank.
- Less hassle in handling cash

## **Internet Banking**

“Internet bank” to mean a bank offering its customers, the ability to transact business with the bank over the internet. Internet banking refers to the use of the internet as a remote delivery channel for banking services. Subsequently, dial-up connections, personal computers, Tele-banking and automated teller machines (ATMs) became the order of the day in most of the developed countries. It is a web-based service that allows the banks authorized customers to access their account information. In this system, customers are allowed to log on the banks website with the help of identification issued by the bank and personal identification number (PIN). Banks replies the user and enables customers to access the desired services.

### **Benefits to Customers**

- Convenience
- Tailored products and services
- Ease of access
- Ease of changing supplier
- Low cost
- Financial planning capability

### **Benefits to Banks**

- Cost saving
- Reaching new segment of the population
- Bring efficiency
- Enhancement of bank's reputation
- Better customer service

### **Mobile Banking**

Mobile banking is a system of providing services to the customer to carry out banking transactions on the 'Mobile Phone' through a cellular service provider. It is a service of banks to make available, the facility of banking wherever the customer is and whenever he needs. We can rather call this facility as "Anywhere and Any Moment Banking" but it is restricted to only information about his account and not cash services.

#### **Benefits to Customers**

- Customers need not stand in the bank counters/front offices for various enquiries about his account
- Customer can save his valuable time in banking transaction
- Give information at anytime and anywhere
- Customers can pay his utility bills in time and save paying penalties
- Plan funding his accounts for the cheques issued to various customers
- Cheque book request can be made sitting in his work place

#### **Benefits to Banks**

- Bank can utilize the time saved for expenses of business, marketing and sales activities by channel migration of customers to mobile banking
- Bank can take advantage of profits by way of commission for cellular companies by selling prepaid talk time through ATMs
- Banks providing mobile banking service can have competitive advantage on those banks, which are not providing this service
- Mobile banking enables banks to reduce costs of courier, communication and paper works etc.

### **Smart Cards**

It is a plastic card with chips embedded on them have been globally accepted as the most effective and secure data storage and payment mechanisms. These cards have the capability to store data and transact using this data. Since data is stored in the card, it can work in an offline mode and does not rely on a back-end or networking for transaction.

#### **Benefits to Customers**

- Portable data, anywhere, anytime
- Time saving
- Large storage capacity
- Minimize the risk associated with fraud/theft

#### **Benefits to Banks**

- Secure data storage
- Reduce cash
- Data digitization without large scale investment
- Increased productivity of bank staff
- Remote access
- Increased customer base

### **Tele Banking**

Tele-banking is only a relatively new electronic banking product. However, it is a fast becoming one of the most popular products. Customers can perform a number of transactions from the convenience of their own home or office, infact from anywhere they have access to a phone. Customers can check balances and statement information, transfer funds from one account to another, and pay certain bills and other statement or Cheque books.

### **Credit Card**

Credit card can be called as and equivalent of a loan sanctioned by the banks to its customer. Credit card facilitates and makes it possible to “Use First and Pay Later” the specified amount of credit as per the agreed terms of sanction. Before issuing a credit card to a customer, the bank would like to know and be sure about the identification, age, level and source of income and repaying capacity. A person intending to get a credit card issued from a bank will have to fill in a prescribed application form for the purpose. Identification documents required to be enclosed with the application.

### **Debit Card**

Debit card is a deposit access product where the card holder uses his own money in his bank account on the principal of “Pay First and Use Later”. It is the only passport for the success of banks in the highly competitive and globalized world.

### **SCHEME OF THE PAPER**

This paper has been divided into five sections. After the brief introduction, second section deals with review of related studies. Third section deals with objectives and research methodology and database. Fourth section deals with findings and section last concludes the paper.

## **2. REVIEW OF RELATED STUDIES**

Previous studies have shown that quality indeed has a significant effect on market share and return on investment (*e.g.*, Anderson and Zeithaml, 1984; Phillips, Chang and Buzzell, 1983). Positive consumers perceptions of service quality also contribute to enhance customer satisfaction (Durvasual and Mehta, 1998) and

*Durvashula, et al (2004)* examined the service quality in one particular type of retailing, namely, departmental stores. The dimensionality of service quality was assessed using perception scores, expectations scores, as well as gap scores in Singapore. The results of the study showed that while the perceptions of retailers about service quality actually provided by the department stores was above the scale neutral point; significant gaps existed between the actual and expected service ratings.

*Evans and Lindsey (1999)* proposed the view that customer satisfaction results from the provision of goods and services that meet or exceed customer needs. To retain customers and stay competitive in the current competitive environment, organization in the service sector especially banks need to make customer perception of service quality on priority (*Reichheld and Sasser, 1990*). *Scheneider, et al (1998)* believe that the customer who holds positive perception regarding the organization quality is likely to remain a customer of that organization. Some researchers like *Rust and Zahorik (1993)* and *Nazir (2000)* say that for the organizations, current customers provide a potential base for cross-selling and are less expensive for them to keep a current customer than to gain a new one.

*Rust and Zahorik (1993)* contended that service quality makes a significant contribution to profitability. Service quality has also been recognized as a driver of corporate marketing and financial performance (*Buttle, 1996*). Assessment of customer perceptions has thus, become an important research topic as it has significant relationship to costs, return on investment, profitability, customer satisfaction, customer retention, service guarantee and marketing performance.

In India some practitioners and researchers have highlighted the need for better service quality in banks (*Narayana and Brahmanandam, 1990; Nageswar 1987; Elias, 1982; Srivastva, 1994; Malhotra and Arora, 1999; Sessa, 1999; Harsh, 2001; Nazir, 2000; Kumar & Mittal, 2002; Mushtaq, 2003; Debasish, 2003 and Krishnaveni & Prabha, 2004-05*). These studies also express the worries of the researchers regarding the present trend of customer dissatisfaction among public sector banks. On account of the rising importance of the concept of service quality, several researchers have tried to define and conceptualize the dimensions of service quality (*Lehtinen and Lehtinen, 1982 & 1991; Gronroos, 1984; Kotler, 1999; and Lewis and Booms, 1983*). But the most widely reported set of definition of service quality is that of Berry and his colleagues (*Parasuraman, Zeithaml and Berry, 1985, 1988*).

## RESEARCH GAP

The available literature on the theme clearly indicates the necessity of e-banking services, but very few empirical studies related to e-service are available. The present study is addition to the existing literature and highlights the perceptions of customers of various bank groups regarding e-services in commercial banks.

## 3. OBJECTIVES, RESEARCH METHODOLOGY AND DATABASE

### Objectives

- To study and analyze the perceptions of the bank customers regarding e-delivery channels.
- Strategies to enhance the e-banking services.

### Hypothesis

There is no significant difference in the opinion of the three bank group's customers regarding e-banking services.

### Research Methodology

The study is based on a survey conducted in Ludhiana (Punjab) in October, 2020. Public sector banks, Indian private sector banks and foreign banks operating in Ludhiana district of Punjab forms the universe of the study. We have selected Ludhiana district of Punjab because all the bank groups' branches are working in this district and it is known as industrial hub of Punjab and it is also thickly populated. We have selected the three banks, one from each bank group. Further we have selected three branches one from each bank group which are providing e-banking services. Total sample size is 768 which is equally divided among the three bank branches. The customers of only three banks have been taken which has experience of at least three years.

Data was analyzed with the help of percentage, ranking, weightage average score (WAS) methods. The respondents were asked to respond on five-point likert scale i.e. highly dissatisfied, dissatisfied, undecided, satisfied, highly satisfied regarding various statements. Weights of 2, 1, 0, -1, -2 were assigned to these levels of scale respectively for calculating the weightage average score. On the other hand, for the purpose of ranking, the following step-by-step method has been followed.

**First Step:** Firstly, in respect of some comparative issues, the number of times factor occupied the 1<sup>st</sup>, 2<sup>nd</sup>----- nth rank were computed in terms of frequency.

**Second Step:** Weights are assigned to each rank in the descending order. Weightage pattern was as: 1<sup>st</sup> rank-3, 2<sup>nd</sup> rank-2 and 3<sup>rd</sup> rank-1.

**Third Step:** The sum of the above given weights, for all the ranks were calculated which is denoted in the above step.

**Fourth Step:** Overall ranks were assigned on the basis of total score values for each factor calculated in the above step.

**Database**

Field Survey

**4. RESULTS AND DISCUSSION**

We introduced 3 mg/l chlorine in our over head tank and sample was taken from first entry point, which is situated at the bottom of the over head tank and then sample is also taken from 20 different entry points which is connected to over head tank. The entire collected sample was shown in the table 1. These samples were collected at different time intervals, at different collection points with 20-year-old aged water over head tank. It was analysed that chlorine was decreasing, due to aged water tank and temperature is inversely proportional to chlorine concentration decay.

**Socio-Economic Profile of the Bank Customers**

In table 1 total sample of customers 768 is equally divided into public, private and foreign banks. Among customers the maximum are male. The maximum customers are post-graduates and belong to service class. 40.89 pc customers are under 25 years. The level of income affects the thinking of the customers. In the present survey, 41.66 pc customers have income above 2 laces.

**Table 1**  
**Socio-Economic Profile of Customers**

Group	Number	%
<b>Bank Group</b>	256	33.33
1.Public	256	33.33
2.Private	256	33.33
3.Foriegn		
<b>Gender-Wise</b>	516	67.19
1.Male	252	32.81
2.Female		
<b>Educational Level</b>	48	6.25
1.High School	294	38.28
2.Graduate	372	48.44
3. Post-Grad.	54	7.03
4.Doctrate		
<b>Occupation</b>	414	53.91
1.Service	138	17.97
2.Business	52	6.77
3.Industry	18	2.34
4.Agriculture	82	10.68
5.Professional	64	8.33
6.Others		
<b>Income Level</b>	178	23.18
1.Upto 1 lac	270	35.16
2. 1-2 lac	320	41.66
3.Above 2 lac		
<b>Present Age</b>	314	40.89
1.Upto 25	244	31.77
2. 26-35	138	17.97

3. 36-45	72	9.37
4. Above 45		
Total	768	100.00

Source: Field Survey

### Preference of e-channel by Customers

Now-a-days customers prefers e-delivery channels because these channels are very cheap, time saving and easy available. Table 2 exhibits that the most preferred e-delivery channel by customers is ATM because it is easily available and very convenient. Second preference is given to credit cards. The Least preferred e-channel by customers is Tele-banking, smart cards, M-banking, I-banking and debit cards.

**Table 2: Preference of e-channel by Customers**

e-channels	Average Score	Total Score	Rank
ATM	86.31	5024	1
Credit Card	59.15	3564	2
Debit Card	53.94	3284	3
M-banking	44.75	2790	5
I-banking	51.26	3140	4
Tele-banking	25.93	1778	7
Smart Card	28.53	1902	6

Source: Field Survey

### ATM-Customers Perception

ATM is the most popular e-delivery channel in the banking industry. In the present scenario of information technology satisfaction or delightedness is the prime aim of the banking industry. Table 3 shows the customers perception about the use of ATM. Survey shows that overall, 62.24 pc customers are highly satisfied and 36.20 pc are satisfied among all the three bank groups. The maximum customers of Indian private sector banks are highly satisfied. Chi-sq test highlights that there is a significant difference at 1% LOS in the responses of respondents from the three bank groups. WAS of all the three bank groups is above 1 which shows that customers of these bank groups are satisfied from the service of ATM. Gender-wise, females are more satisfied. Occupation wise, professionals and agriculturalist are highly satisfied. Age wise, young people are more satisfied.

Overall, there is a significant difference in the opinion of the customers of private and foreign bank groups and statistically this difference is also significant at 1% LOS.

**Table 3 ATM-Customers Perceptions**

Group	HDS	DS	UDC	SFD	HS	WAS	Per cent Chi-test
Bank Type							
1. Public		0.78		35.94	63.28	1.62	Chi <sup>2</sup> =30.10**
2. Private				28.91	71.09	1.71	
3. Foreign	0.78	2.34	0.78	43.75	52.34	1.45	
Gender							
1. Male		1.16	0.39	39.53	58.91	1.56	Chi <sup>2</sup> =12.92*
2. Female	0.79	0.79		29.37	69.05	1.65	
Occupation							
1. Service	0.48	0.97	0.48	42.03	56.04	1.52	Chi <sup>2</sup> =31.58*

2. Business		1.45		26.09	72.46	1.70	
3. Industry				30.77	69.23	1.69	
4. Agriculture				22.22	77.78	1.78	
5. Professional				21.95	75.61	1.71	
6. Others				46.88	53.12	1.53	
Present Age (yrs)							
1. Upto 25		1.27		34.39	64.33	1.62	Chi <sup>2</sup> =24.03*
2. 26-35	0.82			36.07	63.11	1.61	
3. 36-45		2.90	1.45	36.23	59.42	1.52	
4. Above 45				44.44	55.56	1.56	
Total	0.26	1.04	0.26	36.20	62.24	1.59	

Significance of difference of proportions:

Comparison Signi.	1. Public Banks P1	2. Private Banks P2	3. Foreign Banks Stat.	
1 vs. 2	0.99	1.00	1.42	
1 vs. 3	0.99	0.96	2.34	*
2 vs. 3	1.00	0.96	3.19	**

Source: Field Survey Results

Note: HDS-Highly Dissatisfied, DS-Dissatisfied, UDC-Undecided, SFD-Satisfied, HS-Highly Satisfied

### Credit Cards-Customers Perception

The customers need not carry any cash and empowered to spend wherever and whenever he wants with his credit. Whenever a person uses the card, the merchant who in turn can get the money transferred to his account from the banks to buyer. Table 4 depicts the opinion of customers about the performance of credit card. Overall, 30.73 pc are highly satisfied and 48.96 pc are satisfied from the use of credit card among all the three bank groups. Majority of customers are from private sector banks. Chi-sq test shows the significant difference in the opinion of the customers among all the three bank groups at 5% LOS. WAS of public and private sector banks are above 1 which indicates that customers of these bank groups are satisfied from the service of credit card. Gender-wise, females are highly satisfied i.e. 36.51 pc. Occupation wise, highly satisfied customers are the maximum from business class. On the basis of age, old age person are more satisfied.

Overall, there is a insignificant difference in the opinion of the customers of all the three bank groups.

**Table 4 Credit Card-Customer Perception**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HD	WAS	
Bank Type							
1. Public	1.56	7.03	11.72	46.09	33.59	1.03	Chi <sup>2</sup> =19.54*
2. Private		4.69	14.84	47.66	32.81	1.09	
3. Foreign	1.56	10.94	8.59	53.12	25.78	0.91	
Gender							
1. Male	1.16	10.38	12.79	48.06	27.91	0.91	Chi <sup>2</sup> =19.38**
2. Female	0.79	2.38	9.52	50.79	36.51	1.20	
Occupation							



1. Service	1.93	10.63	8.70	52.66	26.09	0.90	Chi <sup>2</sup> =79.20**
2. Business		5.80	13.04	34.78	46.38	1.22	
3. Industry		3.85		57.69	38.46	1.31	
4. Agriculture			11.11	44.44	44.44	1.33	
5. Professional		2.44	21.95	41.46	34.15	1.07	
6. Others		3.12	25.00	59.38	12.50	0.81	
Present Age (yrs)							Chi <sup>2</sup> =44.54**
1. Upto 25		3.82	12.74	56.05	27.39	1.07	
2. 26-35	3.28	8.20	9.02	45.08	34.43	0.99	
3. 36-45		14.49	14.49	43.48	27.54	0.84	
4. Above 45		8.33	11.11	41.67	38.89	1.11	
Total	1.04	7.55	11.72	48.96	30.73	1.01	

Significance of difference of proportions:

1. Public Banks 2. Private Banks 3. Foreign Banks

Comparison Signi.	P1	P2	Stat.
1 vs. 2	0.80	0.80	0.22
1 vs. 3	0.80	0.79	0.22
2 vs. 3	0.80	0.79	0.44

Source: Same as table 3

### Debit Card-Customer Perception

Debit card is also one of the e-delivery services provided by the banks. It is just like a credit card and has a same store value. Debit card is also becoming popular among the customers. Table 4 reveals the perceptions of customers about the performance of debit card. Overall, 33.33 pc customers are highly satisfied and 50.78 pc are satisfied from public, private and foreign bank groups. The maximum respondents are from public sector banks. Chi-sq test indicates that there is a significant difference in the opinion of the customers from all the three bank groups at 5% LOS. WAS of public and private bank

**Table 5 Debit Card: Customers Perceptions**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HS	WAS	
Bank Type							Chi <sup>2</sup> =26.36**
1. Public	2.34	2.34	14.06	41.41	39.84	1.14	
2. Private		3.91	12.50	50.78	32.81	1.12	
3. Foreign	0.78	3.12	8.59	60.16	27.34	1.10	
Gender							Chi <sup>2</sup> =6.82
1. Male	1.16	3.88	11.24	48.45	35.27	1.13	
2. Female	0.79	1.59	12.70	55.56	29.37	1.11	
Occupation							Chi <sup>2</sup> =32.49*
1. Service	0.97	2.90	10.63	48.79	36.71	1.17	
2. Business	1.45	4.35	11.59	47.83	34.78	1.10	
3. Industry		3.85	7.69	57.69	30.77	1.15	
4. Agriculture			33.33	55.56	11.11	0.78	
5. Professional	2.44	2.44	7.32	53.66	34.15	1.15	
6. Others		3.12	21.88	59.38	15.62	0.88	

Present Age (yrs)							
1. Upto 25	0.64	2.55	12.74	54.14	29.94	1.10	Chi <sup>2</sup> =22.70*
2. 26-35	2.46	3.28	9.84	50.00	34.43	1.11	
3. 36-45		5.80	14.49	40.58	39.13	1.13	
4. Above 45			8.33	58.33	33.33	1.25	
Total	1.04	3.12	11.72	50.78	33.33	1.12	

Significance of difference of proportions:

1. Public Banks    2. Private Banks    3. Foreign Banks

Comparison Signi.	P1	P2	Stat.
1 vs. 2	0.81	0.84	0.70
1 vs. 3	0.81	0.88	1.95
2 vs. 3	0.84	0.88	1.26

Source: Same as table 3

groups are above 1 which shows that the customers from these bank groups are satisfied from the service of debit card. Gender wise, males are more satisfied. Occupation wise, the maximum highly satisfied customers i.e. 36.71 pc are from service class. Age wise, majority of highly satisfied customers are from 36-45 age group.

Overall, there is an insignificant difference in the opinion of the customers of public and foreign sector banks.

### Internet Banking-Customers Perception

Internet is a network of network. Touching lifestyles in every sphere the Internet has redefined methods of communication, work, study, education, health, trade and commerce. The Internet is changing everything, from the way we distribute information. Table 6 exhibits the opinion of customers about the use of I-banking. The survey shows that 26.56 pc customers are highly satisfied and 48.18 pc are satisfied. Majority of customers are from public sector banks who are highly satisfied. Chi-sq test shows the significant difference in the opinion of the customers at 1% LOS from all the three bank groups. WAS of only public sector bank group is above 1 which indicates that respondents from this bank group are satisfied from the service of internet banking. Sex wise, females are more satisfied. Occupation wise, majority of highly satisfied customers i.e. 41.46 pc are professionals. Age wise, young people are highly satisfied.

Overall, there is a insignificant difference in the opinion of the customers from all the three bank groups.

**Table6 Internet Banking: Customers Perception**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HS	WAS	
Bank Type							Chi <sup>2</sup> =37.63**
1. Public	2.34	3.12	21.09	37.50	35.94	1.02	
2. Private		3.91	19.53	51.56	25.00	0.98	
3. Foreign	0.78	0.78	24.22	55.47	18.75	0.91	
Gender							Chi <sup>2</sup> =20.52**
1. Male	1.16	3.49	24.81	47.67	22.87	0.88	
2. Female	0.79	0.79	15.08	49.21	34.13	1.15	
Occupation							Chi <sup>2</sup> =61.42**
1. Service	1.45	1.45	20.29	52.66	24.15	0.97	

2. Business		5.80	17.39	46.38	30.43	1.01	
3. Industry		3.85	11.54	61.54	23.08	1.04	
4. Agriculture			44.44	44.44	11.11	0.67	
5. Professional	2.44	4.88	19.51	31.71	41.46	1.05	
6. Others			43.75	34.38	21.88	0.78	
Present Age (yrs)							
1. Upto 25	1.27	3.18	17.83	47.13	30.57	1.03	Chi <sup>2</sup> =21.08*
2. 26-35	1.64	4.10	23.77	48.36	22.13	0.85	
3. 36-45			24.64	46.38	28.99	1.04	
4. Above 45			25.00	55.56	19.44	0.94	
Total	1.04	2.60	21.61	48.18	26.56	0.97	

Significance of difference of proportions:

1. Public Banks    2. Private Banks    3. Foreign Banks

Comparison Signi.	P1	P2	Stat.
1 vs. 2	0.73	0.77	0.82
1 vs. 3	0.73	0.74	0.20
2 vs. 3	0.77	0.74	0.62

Source: Same as table 3

### Mobile Banking-Customers Perception

Mobile banking is becoming popular day by day. Mobile is very cheap and every person can buy it. Mobile banking offers a full range of benefits for financial institutions, ranging from reduced customer support costs to improved customer satisfaction and retention as well as revenue growth. Table 7 highlights the perceptions of customers about M-banking. The survey shows that overall, 24.74 pc customers are highly satisfied and belongs to public sector banks. Chi-sq test shows the significant difference in the opinion of the customers at 1% LOS among all three the bank groups. WAS of three bank groups is less than 1 which indicates that customers of these bank groups are not satisfied from the service of M-banking. Sex wise, females are more satisfied. Occupation wise, professionals are highly satisfied. Age wise, the maximum customers i.e. 26.09 pc are highly satisfied and belongs to 36-45 age group.

Overall, there is a significant difference in the opinion of the customers of private and foreign bank group. Statistically this difference is at 1% LOS.

**Table 7 Mobile Banking: Customers Perception**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HS	WAS	
Bank Type							
1. Public	3.12	3.91	28.12	26.56	38.28	0.93	Chi <sup>2</sup> =74.31**
2. Private		6.25	34.38	39.84	19.53	0.73	
3. Foreign		4.69	25.00	53.91	16.41	0.82	
Gender							
1. Male	1.16	6.59	31.40	39.92	20.93	0.73	Chi <sup>2</sup> =20.70**
2. Female	0.79	1.59	24.60	40.48	32.54	1.02	
Occupation							
1. Service	1.45	4.83	27.05	41.06	25.60	0.85	Chi <sup>2</sup> =32.61*
2. Business	1.45	5.80	30.43	39.13	23.19	0.77	

3. Industry		7.69	15.38	57.69	19.23	0.88	
4. Agriculture			33.33	55.56	11.11	0.78	
5. Professional		2.44	31.71	31.71	34.15	0.98	
6. Others		6.25	46.88	28.12	18.75	0.59	
Present Age (yrs)							
1. Upto 25	0.64	5.10	28.66	38.22	27.39	0.87	Chi <sup>2</sup> =24.34*
2. 26-35	2.46	5.74	23.77	45.08	22.95	0.80	
3. 36-45		1.45	36.23	36.23	26.09	0.87	
4. Above 45		8.33	36.11	38.89	16.67	0.64	
Total	1.04	4.95	29.17	40.10	24.74	0.83	

Significance of difference of proportions:

1. Public Banks    2. Private Banks    3. Foreign Banks

Comparison Signi.	P1	P2	Stat.	
1 vs. 2	0.65	0.59	1.28	
1 vs. 3	0.65	0.70	1.32	
2 vs. 3		0.59	0.70	2.59

\*\*

Source: Same as table 3

### Smart Card: Customers Perception

Smart card is a microchip, which will store the monetary value. When a transaction is made using the card, the monetary value gets debited and balance comes down automatically. Customers prefer smart card because of its large storage capacity and time saving feature. Table 8 also shows the responses of the customers of three bank groups about the use of smart card. Survey reveals that overall 26.04 pc customers are highly satisfied and 35.16 pc are satisfied among all the three bank groups. Majority of highly satisfied customers i.e 36.72 pc are from public sector banks. Chi-sq test highlights that there is a significant difference in the opinion of the customers among all the three bank groups at 1% LOS. WAS of all the three bank groups is less than 1 which indicates that customers not satisfied of these bank group from the service of smart card. Sex wise, females are more satisfied. Occupation wise, businessman i.e. 31.88 pc are more satisfied. Age wise, young people are more satisfied. Overall, there is a significant difference in the responses of the customers of public sector and foreign bank groups. Statistically this difference is at 1%

**Table 8 Smart Card: Customers Perception**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HS	WAS	
Bank Type							
1. Public	3.12	5.47	22.66	32.03	36.75	0.94	Chi <sup>2</sup> =37.88**
2. Private	1.56	5.47	34.38	38.28	20.31	0.70	
3. Foreign		4.69	39.06	35.06	21.09	0.73	
Gender							
1. Male	1.94	6.20	35.27	34.88	21.71	0.68	Chi <sup>2</sup> =20.94**
2. Female	0.79	3.17	25.40	35.71	34.92	1.01	
Occupation							
1. Service	1.45	4.35	31.88	37.68	24.64	0.80	Chi <sup>2</sup> =48.95**
2. Business	4.35	4.35	37.68	21.74	31.88	0.72	
3. Industry			23.05	57.69	19.23	0.96	

4. Agriculture			44.44	33.33	22.22	0.78	
5. Professional		9.76	26.83	31.71	31.71	0.85	
6. Others		12.50	31.25	34.38	21.88	0.66	
Present Age (yrs)							Chi <sup>2</sup> =15.71
1. Upto 25	1.91	7.01	27.39	33.76	29.94	0.83	
2. 26-35	2.46	4.10	35.25	35.25	22.95	0.72	
3. 36-45		4.35	36.23	36.23	23.19	0.78	
4. Above 45		2.78	33.33	38.89	25.00	0.86	
Total	1.56	5.21	32.03	35.16	26.04	0.79	

Significance of difference of proportions:

1. Public Banks    2. Private Banks    3. Foreign Banks

Comparison Signi.	P1	P2	Stat.	
1 vs. 2	0.69	0.59	2.39	*
1 vs. 3	0.69		0.56	2.92
2 vs. 3	0.59	0.56	0.54	

Source: Same as table 3

### Tele-Banking: Customers Perception

The customers can do entire non-cash related banking over the phone anywhere and at anytime. Automatic voice recorder or ID numbers are used for rendering Tele-banking services which have added convenience to the customers. Table 9 exhibits the customer's perceptions about the use of Tele-banking. Survey depicts that overall 34.38 pc are satisfied and 28.12 pc are highly satisfied. The maximum customers i.e. 39.84 pc are highly satisfied and belongs to public sector banks. Chi-sq test shows the significant difference in the opinion of the customers of the three bank groups at 1% LOS.

**Table 9 Tele-Banking: Customers Perception**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HS	WAS	
Bank Type							Chi <sup>2</sup> =45.94**
1. Public	3.12	3.12	27.34	26.56	39.84	0.97	
2. Private	0.78	8.59	30.47	41.41	18.75	0.69	
3. Foreign	0.78	3.91	34.38	35.16	25.78	0.81	
Gender							Chi <sup>2</sup> =21.40**
1. Male	2.33	6.59	33.33	32.56	25.19	0.72	
2. Female		2.38	25.40	38.10	34.13	1.04	
Occupation							Chi <sup>2</sup> =42.28**
1. Service	1.45	3.86	29.47	36.71	28.50	0.87	
2. Business	2.90	4.35	31.88	28.99	31.88	0.83	
3. Industry		11.54	26.92	46.15	15.38	0.65	
4. Agriculture			44.44	33.33	22.22	0.78	
5. Professional	2.44	4.88	26.83	24.39	41.46	0.98	
6. Others		12.50	40.62	34.38	12.50	0.47	
Present Age (yrs)							
1. Upto 25	0.64	7.64	27.39	37.58	26.75	0.82	
3. 26-35	4.10	2.46	28.69	35.25	29.51	0.84	

4. 36-45		2.90	39.13	24.64	33.33	0.88	
5. Above 45		8.33	36.11	36.11	19.44	0.67	
Total	1.56	5.21	30.73	34.38	28.12	0.82	

Significance of difference of proportions:

1. Public Banks    2. Private Banks    3. Foreign Banks

Comparison Signi.	P1	P2	Stat.
1 vs. 2	0.66	0.60	1.47
1 vs. 3	0.66	0.61	1.29
2 vs. 3	0.60	0.61	0.18

Source: Same as table 3

WAS is less than 1 of all the three bank groups which highlights that customers are not satisfied of these bank groups. Gender-wise, females i.e. 34.13 pc are more satisfied. Occupation wise, professionals are more satisfied. Age wise, the maximum highly satisfied customers are from 36-45 age group.

Overall there is a insignificant difference in the opinion of the customers among all the three bank groups.

#### All e-Channels- Customers Perception

e-channels are the gift of information technology. It is a necessity of time that every bank should provide e-channel services to customers. By providing e-channel services one bank can compete with other banks. Table 8 exhibits that overall 28.65 pc customers are highly satisfied and 41.93 pc are satisfied.

**Table 10 All e-channels: Customers Perception**

Group	Per cent						Chi-test
	HDS	DS	UDC	SFD	HS	WAS	
Bank Type							
1. Public	0.78	1.56	25.78	31.25	40.62	1.09	Chi <sup>2</sup> =43.05**
2. Private		3.91	22.66	50.00	23.44	0.93	
3. Foreign		1.56	32.03	44.53	21.88	0.87	
Gender							
1. Male	0.39	2.71	27.91	43.80	25.19	0.91	Chi <sup>2</sup> =10.44**
2. Female		1.59	24.60	38.10	35.71	1.08	
Occupation							
1. Service	0.48	1.45	24.15	45.41	28.50	1.00	Chi <sup>2</sup> =60.77**
2. Business		4.35	33.33	27.54	34.78	0.93	
3. Industry		7.69	11.54	61.54	19.23	0.92	
4. Agriculture			44.44	33.33	22.22	0.78	
5. Professional		2.44	19.51	39.02	39.02	1.15	
6. Others			46.88	40.62	12.50	0.66	
Present Age (yrs)							
1. Upto 25		2.55	26.75	44.59	26.11	0.94	Chi <sup>2</sup> =18.28
2. 26-35	0.82	1.64	21.31	44.26	31.97	1.05	
3. 36-45		2.90	36.23	31.88	28.99	0.87	
4. Above 45		2.78	27.78	41.67	27.78	0.94	
Total	0.26	2.34	26.82	41.93	28.65	0.96	

Significance of difference of proportions:

Comparison Signi.	1. Public Banks	2. Private Banks	3. Foreign Banks	Stat.
1 vs. 2	0.72	0.73	0.40	
1 vs. 3	0.72	0.66	1.34	
2 vs. 3	0.73	0.66	1.73	

Source: Same as table 3

The maximum highly satisfied customers i.e. 40.62 pc are from public sector banks. Chi-sq test highlights that there is a significant difference at 1 % LOS in the responses of respondents from the three bank groups. WAS of public sector bank group is above 1 which shows that customers from this group are satisfied with all e-channel. Sex wise, females are more satisfied. Occupation wise, majority of highly satisfied respondents are businessmen. Age wise, the maximum customers i.e. 31.97 pc are from 26-35 age group. Overall, there is a insignificant difference in the opinion of the customers of all the three bank groups

### Weighted Average Scores (WAS) of All e-channels

A comparison of the overall WAS in table 3 to 9 of different e-channels reveals that WAS for all the e-channels or except I-banking, M-banking, smart cards, Tele-banking is more than 1 which indicates that the respondents are satisfied with these e-channels.

### STRATEGIES TO ENHANCE E-BANKING SERVICES

New private sector banks and foreign banks are by birth fully computerized and many banks are providing all e-banking facilities. They have started to penetrate in rural and semi-urban areas also which will be very harmful for the public sector banks. The customers of the public sector banks have started to shift in e-banks. Public sector banks should create awareness regarding e-banking facility in rural and semi-urban areas. They may be loser in the beginning but will be gainer in the future. Their survival also depends upon the adoption of e-bank services. Public sector banks should open their e-banking branches in the advanced and semi-urban areas. They can also open their branches at the focal point.

### IMPLICATIONS

The major implication of the paper is that customers of the all bank groups are willing to accept e-channels or e-banking services. Survival of the Indian banking industry only depends upon the e-delivery channels. If a bank will not adopt these channels their customers will shift to another bank and its survival will become very difficult in the highly competitive, privatization, globalization and IT era.

### FUTURE AREAS OF RESEARCH

A comprehend research study is required on the following aspects.

- Region-wise adoption of e-channels
- Penetration e-banking in rural sector
- Strategies to develop low cost e-channel

A comparison of e-banking services in India with the developed countries.

## 5. CONCLUSION

The paper concludes that customers have shown positive attitude towards e-banking services. Indian private sector banks and foreign banks customers' are highly in favour of e-delivery channels. Females have shown more preference regarding e-channels compared to males. Similarly, professionals and youth is in favour of e-banking services. This paper also draws the conclusion that public sector banks should try to enhance the e-banking services.

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