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TECHNOLOGY ADOPTION AND CUSTOMER SATISFACTION IN BANKING TECHNOLOGICAL SERVICES

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Abstract

A sound and effective banking system is the backbone of an economy. The economy of a country can function smoothly and without many hassles if the banking system is not only flexible but also capable of meeting the new challenges posed by the technology and other external as well as internal factors. The aim of the study is to compare the banks based on their adoption/usage of technology in banking services and to identify and analyze the factors influencing the customer's adoption/usage of technology in banking services in Coimbatore city. For this purpose a sample of (100) from ICICI bank and (100) from HDFC bank were taken in to consideration and percentage analysis, F-test, and t-test were used as statistical tools to analyze the data. The conclusion is that the dimensions used for the study can be used for decision making process of the study as the level of significance is less than 0.05 in all the dimensions and if the employees are not satisfied from their job, working conditions, work culture, management etc. they

can never make the customers satisfied with better quality services. This paper explores factors that affect the adoption or intention to adopt three e-banking technologies and changes in these factors over time. Using a Federal Reserve Board commissioned data set, the paper finds that relative advantage, complexity/simplicity, compatibility, observability, risk tolerance, and product involvement are associated with adoption. Income, assets, education, gender and marital status, and age also affect adoption. Adoption changed over time, but the impacts of other factors on adoption have not changed. Implications for both the banking industry and public policy are discussed. This study proposes a new method to investigate adoption of new technologies and tests this method by looking into the determinants of internet banking adoption. This paper seeks to develop our understanding of consumer attitudes towards bank delivery channels. Accordingly, a questionnaire was designed to obtain information about which delivery channels consumers had used when acquiring four types of financial service.

Keywords: Customer Satisfaction; Technology; Financial Services; Banking

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INTRODUCTION

Banking has always been a highly information intensive activity that relies heavily on information technology (IT) to acquire, process, and deliver the information to all relevant users. Not only is IT critical in the processing of information, it provides a way for the banks to differentiate their products and services. Banks find that they have to constantly innovate and update to retain their demanding and discerning customers and to provide convenient, reliable, and expedient services. Driven by the challenge to expand and capture a larger share of the banking market, some banks invest in more bricks and mortar to enlarge their geographical and market coverage. Others have considered a more revolutionary approach to deliver their banking services via a new medium: the Internet. Since the introduction of the Internet in 1969, it has evolved from the sole domain of the computer nerd and the academic to a mainstream channel of communication [1].

REVIEW OF LITERATURE

Advances in technology along with increasing labor costs have caused service firms to explore self service delivery options. Nowadays, the service industry in the world is changing, thus new technology has changed the method of customer provide services in many service organizations [2].

Gupta et al. [3] aim to focus on the customer's perception about technology being used for delivery of financial products and services by Public Sector Banks (PSBs) of India. The study finds that public sector banks need to understand the factors that influence the perception of an individual to add greater value to customers in terms of delivering

financial products and services through innovative delivery channels.

The importance of security and privacy for the acceptance of online banking has been noted in many banking studies [4-10]. Security on the Internet can be defined as any factor affecting the perceived risk with both financial and personal matters such as, privacy [11].

Bindiya et al. have studied perception of Indian customers towards the use of technologies with respect to such factors as convenience, privacy, security, ease of use, real time accessibility, and accurate record of varied transaction that enable customer's adoption of Banking Technology. They found there is no significant difference between adoption rates of banking technologies by the customers of different private banks.

METHODOLOGY

Statement of the Problem

The study is about comparing the banks from private sector based on the technology used by the banks to provide survive for their customers. The study may help the concerns to know about the updation on technology about their bank and also their competitor based on the perception of customers.

Objectives of the Study

- To compare the banks based on their adoption/usage of technology in banking services.
- To study about the service quality dimensions and to study about the level of satisfaction of customers of two selected banks.
- To know about the problems on use of technology in selected banks.
- To identify and analyze the factors influencing the customer's adoption/usage of technology in banking services in Coimbatore city.

RESEARCH METHODOLOGY

Descriptive Research design is used for this study. Convenience sampling method was used for this study. The actual number of subjects chosen as a sample to represent the population characteristics. In terms of Market capital, the top two private sector banks are considered for the study. It includes HDFC Bank and ICICI Bank. The total Sample Size for this study is 200 and was collected from both the banks 100 sample respectively in Coimbatore city. The primary data was collected through personal interview along with a well-structured questionnaire consists of close-ended questions and questions with 5-point Likert type scale. The scale of response is 5 Likert Scale and the questions are adopted from Singh [2], Barun, Kumbhar, Al-Hawari et al. [12], Collier et al., Wolfenbarger and Gilly, Joseph and Stone, Lee and Lin, Mobarek and Yee-Loong Chong et al. Some of the questions were modified to suit the nature of the operations in

its environment and few questions were added in consideration of the reliability and validity. For some respondents questionnaire method was used to collect data. Secondary data are the data that have already been gathered by researchers, data published in statistical and other journals, and information available from any published or unpublished source available either within or outside the organization, all of which might be useful to the researcher [13]. The secondary data for this project are collected from text book, journals and from internet. The various statistical tests are used which includes mean, independent sample t-test, one-way ANOVA and Friedman’s test for rank analysis (Table 1).

RESULTS AND DISCUSSIONS

Table 1: Demographic Profile of the Customers.

Particulars	Category	ICICI Bank	HDFC Bank
Gender	Male	49	46
	Female	51	54
Age	18-25	51	27
	26-30	20	39
	31-40	12	30
	41-50	12	4
	51-60	5	0
Level of Education	Illiterate	0	0
	High school	11	0
	Intermediate	0	11
	Degree	39	45
	Master Degree	50	44
	Others	0	0
Marital status	Married	53	41
	Unmarried	36	59
	Widowed	11	0
	Divorce	0	0
Occupational Distribution	Govt employee	4	22
	Private employee	81	51
	Business	5	18
	Student	10	5
	House wife	0	4
	Others	0	0

Income wise Composition of Respondents	Up to 10000	23	8
	10000-15000	0	5
	15001-20000	8	4
	20001-25000	15	11
	25001-30000	12	12
	30001-35000	20	13
	35001-40000	17	8
	40001-50000	5	14
	50001 and above	0	25
	Total	100	100

It's inferred that majority of the respondents are female from ICICI and HDFC banks and there is no significant relationship between both the banks while comparing the gender. The age group of 18-25 in ICICI bank and most of the respondents are from the age group of 26-30 from HDFC and there is a significant relationship between both the banks while comparing the age of the respondents. The respondents have completed their master degree in ICICI bank and most of the respondents have completed their degree in HDFC and there is a significant relationship between both the banks while comparing the level of education of the respondents. Majority of the respondents are married in ICICI bank and majority of the respondents are unmarried in HDFC and there is a significant relationship between both the banks while comparing the marital status of the respondents (Table 2). Majority of the respondents are private employees in both ICICI bank HDFC and there is a significant relationship between both the banks while comparing the occupational distribution of the respondents. Majority of the respondents are earning from 30001-35000 in ICICI bank and most of the respondents are earning above 50001 in HDFC and there is a significant relationship between both the banks while comparing the income of the respondents.

Table 2: Status of Internet Usage of Respondents.

Status	ICICI Bank	HDFC Bank
Less than 1 year	0	12
1-5 years	32	57
5-10 years	29	23
10-15 years	34	8
above 15 years	5	0
Total	100	100
Chi square value= 2.019, Level of significance @0.05= 0.111		

It's inferred that most of the respondents holding their account for 10-15 years in ICICI bank and majority of the respondents are holding for 1-5 years in HDFC there is no

significant relationship between both the banks while comparing the account status of the respondents (Table 3).

Table 3: ANOVA Analysis on Customer Satisfaction of Service Quality- Tangibility.

Satisfaction Levels of Tangibility	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Bank has up-to-date equipment and technology	ICICI	24	64	12	0	0	12.543	0.000**
	HDFC	52	47	7	0	0		
Location of the bank	ICICI	27	43	30	0	0	11.917	0.000**
	HDFC	26	58	16	0	0		
Sufficient number of ATM machines	ICICI	37	21	38	0	0	3.728	0.984
	HDFC	27	52	21				
Counter partitions in bank and its branches	ICICI	31	13	56	0	0	8.510	0.002**
	HDFC	12	41	26	8	13		
Materials associate with the banks office (pamphlets, brochures) are visually appealing at the banks of office	ICICI	31	57	12	0	0	10.313	0.007**
	HDFC	10	34	45	8	3		
The employees approach	ICICI	29	39	32	0	0	7.405	0.045*
	HDFC	19	27	46	4	4		
Guide sings indicating as to which counters are offering which services	ICICI	40	38	18	4	0	3.925	0.067
	HDFC	17	33	38	4	8		

Under the dimension of customer satisfaction of service quality with reference to tangibility the services which were highly influential in customer satisfaction of service quality are bank has up-to-date equipment and technology, location of the bank, counter partitions in bank and its branches, and materials associate with the banks office (pamphlets, brochures) are visually appealing at the banks of office [14]. The f-values for these services are 0.000**, 0.000**, 0.002**, 0.007** respectively, which is less than .01 level of significance. The services which are less influential in customer satisfaction of service quality are the employees approach and the f value is 7.405 which is less than 0.05 level of significance (Table 4). Materials associated with sufficient number of ATM machines, and guide sings indicating as to which counters are offering which services were not influential in this dimension. The f-test shows 3.728 and 3.925 which is not significant.

Table 4: ANOVA Analysis of Customer Satisfaction of Service Quality – Reliability.

Satisfaction Levels of Reliability	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
The bank website does not freeze after customer put in all the information	ICICI	80	20	0	0	0	6.723	0.001**
	HDFC	56	41	3	0	0		
Information provided on website	ICICI	63	29	4	4	0	12.978	0.000**
	HDFC	11	78	11	0	0		
up to date content	ICICI	57	8	15	20	0	16.667	0.048*
	HDFC	20	55	25	0	0		
Process of transactions	ICICI	52	8	20	20	0	11.561	0.529
	HDFC	12	32	49	7	0		
Wide range of products provided	ICICI	47	9	20	8	16	8.864	0.015*
	HDFC	16	29	37	9	9		
*P<0.05, **P<0.01								

Table 5: ANOVA Analysis of Customer Satisfaction of Service Quality- Responsiveness.

Satisfaction Levels of Responsiveness	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Customer service representative	ICICI	24	43	33	0	0	8.67	0.007**
	HDFC	59	37	4	0	0		
Bank performs the services right the first	ICICI	8	81	11	0	0	5.38	0.064
	HDFC	8	77	15	0	0		
Quick confirmation	ICICI	16	36	48	0	0	14.3	0.083
	HDFC	7	51	42	0	0		
Our request are handled promptly	ICICI	32	29	27	12	0	8.16	0.053
	HDFC	12	30	52	6	0		
*P<0.05, **P<0.01								

Under the dimension of customer satisfaction of service quality with reference to reliability the services which were highly influential in customer satisfaction of service quality are the bank website does not freeze after customer put in all the information, and Information provided on website. The f-values for these services are 6.273 and 12.978 respectively, which is less than 0.01 level of significance [15,16]. The services which are less influential in customer satisfaction of service quality is up to date content and wide range of products provided and the f value is 16.667 and 8.8654 which is less than 0.05 level of significance. A material associated with Process of transactions is not influential in this dimension (Table 5). The f-test shows 11.561 which are not significant.

Under the dimension of customer satisfaction of service quality with reference to responsiveness the services which were highly influential in customer satisfaction of service quality are customer service representative and the f-values for these services are 8.670 which is less than 0.01 level of significance [17-19]. Materials associated with bank performs the services right the first time, quick confirmation, and our request are handled promptly is not influential in this dimension (Table 6). The f- test shows 5.387, 14.301, and 8.163 respectively which is not significant.

Table 6: ANOVA Analysis of Customer Satisfaction of Service Quality – Assurance.

Satisfaction Levels of Assurance	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Employees knowledge to answer	ICICI	12	68	20	0	0	18.615	0.000**
	HDFC	38	38	24	0	0		
Politeness and friendly staff	ICICI	12	69	19	0	0	4.257	0.285
	HDFC	13	28	47	3	0		
Employees are always willing to help you	ICICI	12	65	23	0	0	2.113	0.112
	HDFC	22	28	47	3	0		
Experienced management team	ICICI	16	57	27	0	0	4.677	0.018*
	HDFC	23	39	24	10	4		

*P<0.05, **P<0.01

Under the dimension of customer satisfaction of service quality with reference to assurance the services which were highly influential in customer satisfaction of service quality is Employees of bank have the knowledge to answer customer questions and the f-values for the services is at 18.615 which is less than 0.01 level of significance (Table 7). The services which are less influential in customer satisfaction of service quality is experienced management team and the f value is 4.677 which is less than 0.05 level of significance [20]. Materials associated with Politeness and friendly staff,

and Employees are always willing to help you are not influential in this dimension. The f-test shows 4.257 and 2.113 respectively which is not significant.

Table 7: ANOVA Analysis of Customer Satisfaction of Service Quality – Empathy

Satisfaction Levels of Empathy	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Time bound work of employee	ICICI	20	41	39	0	0	9.797	0.004**
	HDFC	43	45	12	0	0		
Help desks, call centers of bank	ICICI	4	48	48	0	0	9.182	0.000**
	HDFC	11	58	31	0	0		
Specific needs understood	ICICI	26	17	53	4	0	5.551	0.008**
	HDFC	20	48	28	4	0		
Provisions of financial advices	ICICI	37	18	40	5	0	10.279	0.236
	HDFC	16	36	37	8	3		
*P<0.05, **P<0.01								

Table 8: ANOVA Analysis of Customer Satisfaction of Service Quality – Efficiency.

Satisfaction Levels of Efficiency	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Faster login facility	ICICI	25	59	16	0	0	7.305	0.002**
	HDFC	38	51	8	3	0		
Performance of plastic cards (ATM, debit/credit)	ICICI	16	44	40	0	0	13.991	0.205
	HDFC	6	56	31	4	3		
Transfer of funds (NEFT,RTGS)	ICICI	16	44	40	0	0	6.618	0.000**
	HDFC	14	32	46	4	4		
Clearing services (ECS-credit/debit)	ICICI	9	35	52	4	0	9.365	0.000**
	HDFC	13	33	40	14	0		
*P<0.05, **P<0.01								

Under the dimension of customer satisfaction of service quality with reference to empathy the services which were highly influential in customer satisfaction of service quality are Time bound work of employee, Help desks, call centers of bank, Specific needs understood and the f-values for the services are at 9.797, 9.182, 5.551 respectively which is less than 0.01 level of significance (Table 8). Material associated with Provisions of financial advices is not influential in this dimension [21]. The f- test shows 10.279 which are not significant.

Under the dimension of customer satisfaction of service quality with reference to efficiency the services which were highly influential in customer satisfaction of service quality are Faster login facility, Transfer of funds (NEFT,RTGS), and Clearing services (ECS-credit/debit) [22-24]. The f-values for the services are at 7.305, 6.618, 9.365 respectively which is less than 0.01 level of significance. Materials associated with Performance of plastic cards (ATM, debit/credit) are not influential in this dimension. The f- test shows 13.991 which are not significant (Table 9).

Table 9: ANOVA Analysis of Customer Satisfaction of Service Quality – Accuracy.

Satisfaction Levels of Accuracy	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Problem solving through instant information	ICICI	22	59	15	4	0	9.375	0.000**
	HDFC	32	49	19	0	0		
Bank insist on error-free transaction records	ICICI	36	40	24	0	0	11.589	0.000**
	HDFC	13	57	30	0	0		
Electronic bills payments	ICICI	49	36	15	0	0	16.781	0.001**
	HDFC	19	31	46	4	0		
Service charges	ICICI	28	38	28	6	0	3.711	0.020*
	HDFC	8	38	46	8	0		

*P<0.05, **P<0.01

Under the dimension of customer satisfaction of service quality with reference to accuracy the services which were highly influential in customer satisfaction of service quality are Problem solving through instant information, Bank insist on error-free transaction records, and Electronic bills payments (Table 10). The f-values for the services are at 9.375, 11.589, 16.781 respectively which is less than 0.01 level of significance. The services which are less influential in customer satisfaction of service quality are Service charges and the f value is 3.711 which is less than 0.05 level of significance.

Table 10: ANOVA Analysis of Customer Satisfaction of Service Quality – Security.

Satisfaction Levels of Security	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Security of ATMs	ICICI	20	72	4	4	0	2.027	0.433
	HDFC	27	53	16	4	0		
Online filling	ICICI	32	62	6	0	0	3.874	0.017*
	HDFC	10	51	35	4	0		
Protection of banking transactions	ICICI	37	21	42	0	0	5.910	0.344
	HDFC	13	57	23	3	4		
Privacy/confidentiality of the bank	ICICI	28	33	39	0	0	5.902	0.001**
	HDFC	29	16	43	12	0		
Care in collection of personal information	ICICI	36	37	27	0	0	8.943	0.000**
	HDFC	11	34	43	8	4		

*P<0.05, **P<0.01

Under the dimension of customer satisfaction of service quality with reference to security the services which were highly influential in customer satisfaction of service quality are Privacy/confidentiality of the bank, and Care in collection of personal information. The f-values for the services are at 5.902 and 8.943 respectively which is less than 0.01 level of significance [25]. The services which are less influential in customer satisfaction of service quality are online filling and the f value is 3.874 which is less than 0.05 level of significance (Table 11). Materials associated with Security of ATMs, and Protection of banking transactions is not influential in this dimension. The f-test shows 2.027 and 5.910 respectively which is not significant.

Table 11: ANOVA Analysis of Customer Satisfaction of Service Quality - Easy and Convenient Banking.

Satisfaction Levels of Easy and Convenient Banking	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Language and information content	ICICI	24	72	4	0	0	8.965	0.010*
	HDFC	40	36	24	0	0		
Easy to find and change	ICICI	57	43	0	0	0	5.671	0.016*
	HDFC	21	48	31	0	0		
Instruction on the website	ICICI	32	40	28	0	0	4.432	0.521

	HDFC	24	37	31	8	0		
User friendly system	ICICI	37	47	12	4	0	4.475	0.102
	HDFC	11	34	43	12	0		
Convenient hours of operations (24*7)	ICICI	48	28	20	4	0	5.865	0.008**
	HDFC	14	31	48	3	4		
*P<0.05, **P<0.01								

Under the dimension of customer satisfaction of service quality with reference to easy and convenient banking the services which were highly influential in customer satisfaction of service quality is convenient hours of operations (24*7). The f-values for the services are at 5.865 which is less than 0.01 level of significance (Table 12). The services which are less influential in customer satisfaction of service quality are Language and information content, and Easy to find and change [26]. The f values are at 8.965 and 5.671 which is less than 0.05 level of significance. Materials associated with Instruction on the website, and User friendly system is not influential in this dimension. The f- test shows 4.432 and 4.475 respectively which is not significant.

Table 12: ANOVA Analysis of Customer Satisfaction of Service Quality - Customer Service.

Satisfaction Levels of Customer Service	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Customer friendly environment at bank	ICICI	32	64	4	0	0	16.592	0.000**
	HDFC	37	53	3	7	0		
Customer feedback services	ICICI	4	42	15	0	0	7.413	0.000**
	HDFC	11	71	18	0	0		
Capable of solving complaints adequately	ICICI	44	21	31	4	0	9.101	0.044*
	HDFC	15	40	45	0	0		
Brochures to educate new users	ICICI	37	51	12	0	0	6.739	0.701
	HDFC	24	34	31	8	3		
Special services for the elders and disabled	ICICI	53	31	16	0	0	2.620	0.373
	HDFC	3	43	47	3	4		
*P<0.05, **P<0.01								

Under the dimension of customer satisfaction of service quality with reference to customer Service the services which were highly influential in customer satisfaction of

service quality are Customer friendly environment at bank, and Customer feedback services. The f-values for the services are at 16.592 and 7.413 respectively which is less than 0.01 level of significance (Table 13). The services which are less influential in customer satisfaction of service quality are capable of solving complaints adequately. The f value is at 9.101 which is less than 0.05 level of significance. Materials associated with Brochures to educate new users and Special services for the elders and disabled are not influential in this dimension. The f- test shows 6.739 and 2.620 respectively which is not significant.

Table 13: ANOVA Analysis of Satisfaction level of ATM Services.

Satisfaction Levels of ATM Services	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Promptness of card delivery	ICICI	10	81	9	0	0	5.735	0.281
	HDFC	28	61	11	0	0		
Number of transactions	ICICI	24	32	44	0	0	12.84	0.194
	HDFC	23	51	23	3	0		
The quality of notes (currency)	ICICI	32	35	29	4	0	2.288	0.074
	HDFC	17	36	47	0	0		
Conveniently located	ICICI	6	57	37	0	0	2.290	0.098
	HDFC	26	52	18	4	0		

*P<0.05, **P<0.01

Under the dimension of Satisfaction level of ATM Services material associated with Promptness of card delivery, Number of transactions, the quality of notes (currency), conveniently located is not influential in this dimension (Table 14). The f- test shows 5.735, 12.840, 2.288, 2.290 which is not significant.

Table 14: ANOVA Analysis of Satisfaction level of Internet Banking Services.

Satisfaction Levels of Internet banking Services	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Accounts information and balance enquiry	ICICI	27	57	16	0	0	12.27	0.008**
	HDFC	38	40	19	3	0		
E-payments	ICICI	19	47	34	0	0	7.615	0.282
	HDFC	10	72	15	3	0		
Account to account transfer	ICICI	28	39	29	4	0	7.902	0.243
	HDFC	12	59	26	3	0		
Due installment enquiry	ICICI	27	27	37	9	0	5.907	0.081
	HDFC	12	40	41	4	3		
Statement requests (by email, fax)	ICICI	27	26	21	18	8	3.705	0.025*
	HDFC	15	39	33	4	9		

*P<0.05, **P<0.01

Under the dimension of satisfaction on Technological services usage and problems with reference to Internet banking Services which were highly influential in customer satisfaction of service quality are Accounts information and balance enquiry. The f-values for the services are at 12.278 respectively which is less than 0.01 level of significance (Table 15). The services which are less influential in satisfaction on Technological services usage and problems is Statement requests (by email, fax) [27]. The f value is at 3.705 which is less than 0.05 level of significance. Materials associated with E-payments, Account to account transfer, and Due installment enquire are not influential in this dimension. The f- test shows 7.615, 7.902 and 5.907 respectively which is not significant.

Table 15: ANOVA Analysis of Satisfaction level of Telephone Banking Services.

Satisfaction Levels of Telephone Banking Services	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Pleasant music background	ICICI	10	69	30	0	0	21.613	0.000**
	HDFC	56	29	8	7	0		
Reasonable number of voice prompts	ICICI	38	42	20	0	0	15.486	0.000**
	HDFC	8	80	8	4	0		
Clear instructions	ICICI	18	37	41	4	0	21.333	0.000**
	HDFC	32	50	14	4	0		
Voice directions/ online directions for new users	ICICI	23	39	34	4	0	3.507	0.071
	HDFC	23	39	34	4	0		
Provide additional options	ICICI	27	27	33	13	0	2.569	0.143
	HDFC	27	27	33	13	0		

*P<0.05, **P<0.01

Under the dimension of satisfaction on Technological services usage and problems with reference to Telephone Banking Services which were highly influential in customer satisfaction of service quality are Pleasant music background, Reasonable number of voice prompts, Clear instructions and the f-values for the services are at 21.613, 15.486, and 21.333 respectively which is less than 0.01 level of significance (Table 16). Material associated with Voice directions/ online directions for new users, and Provide additional options are not influential in this dimension. The f-test shows 3.507 and 2.569 respectively which is not significant.

Under the dimension of satisfaction on Technological services usage and problems with reference to Mobile Banking Services which were highly influential in customer satisfaction of service quality are Reward point status, Prepaid mobile recharge, SMS

alerts about specific information to the bank services/new products, Transaction status, Expensive and the f-values for the services are at 7.114, 11.306, 2.751, 4.806, and 10.928 respectively which is less than .01 level of significance (Table 17).

Table 16: ANOVA Analysis of Satisfaction level of Mobile Banking Services.

Satisfaction Levels of Mobile Banking services	Bank Name	Extremely Satisfied	Satisfied	Neutral	Dissatisfied	Extremely Dissatisfied	F value	Sig
Reward point status	ICICI	20	49	27	4	0	7.114	0.001**
	HDFC	29	63	8	0	0		
Prepaid mobile recharge	ICICI	23	57	20	0	0	11.306	0.000**
	HDFC	9	72	19	0	0		
SMS alerts about specific information to the bank services/new products	ICICI	15	60	25	0	0	2.751	0.002*
	HDFC	8	47	41	4	0		
Transaction status	ICICI	15	48	37	0	0	4.806	0.000**
	HDFC	18	27	41	14	0		
Expensive	ICICI	28	44	28	0	0	10.928	0.000**
	HDFC	22	8	60	3	7		

*P<0.05, **P<0.01

Table 17: ANOVA Analysis of ATM Problems.

ATM Problems	Bank Name	Often	Rarely	Never	F value	Sig
Cards get blocked	ICICI	4	66	30	13.313	0.001**
	HDFC	48	49	3		
Machine out of cash	ICICI	20	47	33	6.176	0.782
	HDFC	11	81	8		
None printing of services	ICICI	16	51	33	7.985	0.163
	HDFC	20	53	27		
Machine out of order	ICICI	28	28	44	8.485	0.140
	HDFC	37	33	30		
Long waiting times in queues	ICICI	15	53	32	14.977	0.460
	HDFC	6	66	28		
Reduction in balance without cash payments	ICICI	11	53	36	20.471	0.000**
	HDFC	7	55	38		

*P<0.05, **P<0.01

Under the dimension of Problems of technology usage with reference to satisfaction levels of tangibility which were highly influential in Problems of technology usage are Cards get blocked, Reduction in balance without cash payments and the f-values for the services is at 13.132 and 20.471 respectively which is less than 0.01 level of significance [28]. Material associated with Machine out of cash, none printing of services, Machine out of order, and long waiting times in queues are not influential in this dimension (Table 18). The f-test shows 6.176, 7.985, 8.485 and 14.977 respectively which is not significant.

Table 18: ANOVA Analysis of Internet Banking Problems.

Internet Banking Problems	Bank Name	Often	Rarely	Never	Fvalue	Sig
Not providing information	ICICI	19	51	30	6.231	0.076
	HDFC	57	35	8		
Not being able to maintain security	ICICI	15	80	25	12.663	0.027*
	HDFC	16	76	8		
Not giving fast response	ICICI	15	48	37	5.883	0.001**
	HDFC	27	39	34		
Leaving the operation unfinished	ICICI	11	36	53	9.944	0.197
	HDFC	41	33	26		
Internet banking can be tampered with by others	ICICI	20	16	64	5.521	0.001**
	HDFC	21	62	17		
Waiting for long time for conducting of transactions	ICICI	20	26	54	8.569	0.000**
	HDFC	10	47	43		
Too many steps in processing transactions	ICICI	11	49	40	11.605	0.000**
	HDFC	37	22	41		

*P<0.05, **P<0.01

Under the dimension of problems of technology usage with reference to Internet Banking Problems which were highly influential in Problems of technology usage are Cards get blocked, Reduction in balance without cash payments and the f-values for the services is at 13.132 and 20.471 respectively which is less than 0.01 level of significance (Table 19). Not giving fast response, Internet banking can be tampered with by others, waiting for long time for conducting of transactions and too many steps in processing transactions and the f values for the services are at 5.883, 5.521, 8.569, and 11.605 respectively. The services which are less influential in satisfaction on Technological services are not being able to maintain security. The f-value is at 12.663 which is less than 0.05 level of significance. Materials associated with E Not providing information, and leaving the operation unfinished are not influential in this dimension. The f- test shows 6.231 and 9.944 respectively which is not significant.

Table 19: ANOVA Analysis of Telephone Banking Problems.

Tele Phone Banking Problems	Bank Name	Often	Rarely	Never	Fvalue	Sig
Lack of knowledge of customer service representative	ICICI	15	73	12	23.776	0.000**
	HDFC	43	50	7		
Absents immediate connection to the services	ICICI	16	58	26	15.038	0.212
	HDFC	11	78	11		
Lack of prompt services	ICICI	19	39	42	11.514	0.100
	HDFC	14	56	30		
Lack of clear guidelines	ICICI	11	49	40	4.638	0.002**
	HDFC	15	25	60		

*P<0.05, **P<0.01

Under the dimension of problems of technology usage with reference to Tele Phone Banking Problems which were highly influential in Problems of technology usage are Lack of knowledge of customer service representative and Lack of clear guidelines and the f-values for the services are at 23.776 and 4.638 respectively which is less than 0.01 level of significance [29]. Materials associated with Absents immediate connection to the services and Lack of prompt services are not influential in this dimension (Table 20). The f- test shows 15.038 and 11.514 respectively which is not significant.

Table 20: ANOVA Analysis of Mobile Banking Problems.

Mobile Banking Problems	Bank Name	Often	Rarely	Never	F value	Sig
Log in/sign off are not easy	ICICI	15	73	12	10.921	0.009**
	HDFC	36	51	13		
Lack of security in transactions	ICICI	16	58	26	8.813	0.074
	HDFC	8	80	12		
Lack of appropriate software	ICICI	19	52	29	5.985	0.102
	HDFC	11	36	53		

Under the dimension of problems of technology usage with reference to Mobile Banking Problems which were highly influential in Problems of technology usage are Log in/sign

off are not easy and the f-values for the services are at 10.921 which is less than .01 level of significance [30,31]. Materials associated with Lack of security in transactions and Lack of appropriate software is not influential in this dimension (Table 21). The f-test shows 8.813 and 5.985 respectively which is not significant.

Table 21: T-test analysis of Overall Satisfaction Level of Services.

Dimensions	Bank Name	N	Mean	Standard deviation	Std. Error Mean	t value	Sig
ATM Services	ICICI	100	2.1375	0.67575	0.0675	32.82	0.000**
	HDFC	100	2.2975	0.7225	0.0722		
Internet banking Services:	ICICI	100	2.13	0.74925	0.07475	33.78	0.000**
	HDFC	100	2.1675	0.767	0.07675		
Telephone Banking Services	ICICI	100	2.12	0.71775	0.072	36.21	0.000**
	HDFC	100	2.0525	0.73	0.07275		
Mobile Banking services:	ICICI	100	2.12	0.71775	0.072	37.40	0.000**
	HDFC	100	2.2125	0.71325	0.07125		
*P<0.05, **P<0.01							

Under the dimension of problems of technology usage with reference to Overall Satisfaction level of services. The level of significance of all the factors under the dimensions are taken in to consideration as the significance level is at 0.000 which is less than 0.05.

FINDINGS, POLICY IMPLICATIONS AND CONCLUSION

FINDINGS

- Majority of the respondents are female from ICICI and HDFC banks and there is no significant relationship between both the banks while comparing the gender.
- Majority of the respondents are from the age group of 18-25 in ICICI bank and most of the respondents are from the age group of 26-30 from HDFC and there is a significant relationship between both the banks while comparing the age of the respondents.
- Majority of the respondents have completed their master degree in ICICI bank and most of the respondents have completed their degree in HDFC and there is a significant relationship between both the banks while comparing the level of

education of the respondents.

- Majority of the respondents are unmarried in HDFC and there is a significant relationship between both the banks while comparing the marital status of the respondents.
- Majority of the respondents are private employees in both ICICI bank HDFC and there is a significant relationship between both the banks while comparing the occupational distribution of the respondents.
- Most of the respondents are earning from 30001-35000 in ICICI bank and most of the respondents are earning above 50001 in HDFC and there is a significant relationship between both the banks while comparing the income of the respondents.
- Most of the respondents holding their account for 10-15 years in ICICI bank and majority of the respondents are holding for 1-5 years in HDFC there is no significant relationship between both the banks while comparing the account status of the respondents.
- Bank has up-to-date equipment and technology, location of the bank, counter partitions in bank and its branches, and materials associate with the banks office (pamphlets, brochures) are visually appealing at the banks of office are highly influenced.
- The bank website does not freeze after customer put in all the information, and Information provided on website are highly influenced under the dimension of customer satisfaction of service quality with reference to reliability the services.
- Customer service representative under the dimension of customer satisfaction of service quality with reference to responsiveness the services which were highly influential in customer satisfaction of service quality.
- Employees of bank have the knowledge to answer customer questions Under the dimension of customer satisfaction of service quality with reference to assurance the services which were highly influential in customer satisfaction of service quality.
- Faster login facility, Transfer of funds (NEFT, RTGS), and Clearing services (ECS-credit/debit) under the dimension of customer satisfaction of service quality with reference to efficiency the services which were highly influential in customer satisfaction of service quality.
- Problem solving through instant information, Bank insist on error-free transaction records, and Electronic bills payments under the dimension of customer

satisfaction of service quality with reference to accuracy the services which were highly influential in customer satisfaction of service quality.

- In t-test analysis the level of significance of all the factors under the dimensions are taken in to consideration as the significance level is at 0.000 which is less than 0.05.

POLICY IMPLICATIONS

- The fast augment in number of computerized deliverance channels and customers' preference to use the online products because of versatile attributes are placing pressure on banks to respond aggressively to meet the customers' needs. The study provides required input to bank management to increase customers' involvement through improving service quality; lowering risk; and enhancing security of operations.
- Banks should develop strategies to inspire non-users through awareness, education, personalized services, and demonstrating the functions of internet and mobile banking services. This study shows that recognizing both technological and trust-based issues are important in increasing employee customer's behavioral intention to use banking services.
- The dimensions used for the study can be used for decision making process of the study as the level of significance is less than 0.05 in all the dimensions.
- Indian Banking Industry is in transformation stage in order to keep pace with the global banking practices all over the world. In recent years the banking reforms with reference to BASEL NORMS by the Central Government under the regulation of RBI. The banking sector reforms introduced recently started giving positive outcomes. Basel III norms which were intended to streamline bank capital requirements by increasing banks liquidity through liquid assets and decreasing bank leverage.

CONCLUSION

The banking sector in India is on a growing trend. It has vastly benefitted from the surge in disposable income of individuals in the country. Banking has always been a highly information intensive activity that relies heavily on information technology (IT) to acquire, process, and deliver the information to all relevant users. The main objective of the study is to compare the banks based on their adoption/usage of technology in banking services and to identify and analyze the factors influencing the customer's adoption/usage of technology in banking services in Coimbatore city. For this purpose a sample of 200, (100) from ICICI bank and (100) from HDFC bank were taken in to consideration were percentage analysis, F-test, and t-test were used as statistical tools

to analyze the data. The conclusion is that the dimensions used for the study can be used for decision making process of the study as the level of significance is less than 0.05 in all the dimensions and if the employees are not satisfied from their job, working conditions, work culture, management etc. they can never make the customers satisfied with better quality services. So the management has to take remedy measures to analyze about the satisfaction of the employees.

LIMITATIONS OF THE STUDY

This study has a number of limitations. First, the study is limited by the instrument and applicable to Coimbatore city only. Though the suggestion of multiple methods is a recognition that it increases confidence in the results, the validity and versatility of the single instrument for this study is never in doubt and so the outcomes of the study. The data was collected from only 200 respondents from ICICI and HDFC bank.

REFERENCES

1. Nehmzow C (1997) The Internet will shake banking's medieval foundations. *Journal of Internet Banking and Commerce* 2: 9702-01.
2. Singh A, Verma D, Bharti V (2016) Perceived Importance of Different Dimensions of Internet Banking Service Quality and Its Perceived Impact on Gender. *The International Journal of Business and Management* 4: 205.
3. Gupta N, Khanna VT (2015) Customer's Adoption for Technology-Enabled Delivery Channels in Selected Public Sector Banks. *International Journal of Business and Management* 10: 215.
4. Sathye M (1999) Adoption of Internet banking by Australian consumers: an empirical investigation. *International Journal of bank marketing* 17: 324-334.
5. Hamlet C, Strube M (2000) Community banks go online. *ABA Banking Journal's 2000 White Paper/Banking on the Internet* pp: 61-5.
6. Tan M, Teo TSH (2000) Factors influencing the adoption of Internet banking. *Journal of the Association for Information Systems* 1: 1-42.
7. Polatoglu VN, Ekin S (2001) An empirical investigation of the Turkish consumers' acceptance of Internet banking services. *International Journal of Bank Marketing* 19: 156-65.
8. Black NJ, Lockett A, Winklhofer H, McKechnie S (2002) Modelling consumer choice of distribution channels: An illustration from financial services. *The International Journal of Bank Marketing*.
9. Giglio V (2002) Privacy in the world of cyberbanking: Emerging legal issues and how you are protected. *The Secured Lender*. pp: 48-60.
10. Howcroft B, Hamilton R, Hewer P (2002) Consumer attitude and the usage and adoption of home-based banking in the United Kingdom. *The International Journal of Bank Marketing* 20: 111-121.
11. Grewal R, Dharwadkar R (2002) The role of the institutional environment in marketing channels. *Journal of Marketing* 66: 82-98.

12. Al-Hawari M, Ward T (2005) The influence of Internet Banking and Teller service quality on customer retention: A comparison Study. ANZMAC 2005 Conference: Electronic Marketing. pp: 10-17.
13. ABA Banking Journal (2001) E-banking 2001: where are we headed? 93: 52-53.
14. Davis F (1986) A technology acceptance model for Empirically Testing New End-User Information Systems: Theory and Result. MIT.
15. Donnelly JH (1970) Social character and acceptance of new products. Journal of Marketing
16. Grabner-Kräuter S, Faullant R (2008) Consumer acceptance of internet banking: The influence of internet trust. International Journal of bank marketing 26: 483-504.
17. Puschel J, Mazzon J, Hernandez J (2010) Mobile Banking Proposition of an Integrated Adoption Intention Framework. Internal Journal of Bank Marketing 28: 342-371.
18. Chen JS, Tsou HT (2007) Information Technology Adoption for Service Innovation Practices and Competitive Advantage: The case of financial firms. Information Research – An International Electronic Journal 12.
19. Kalfan A, Al-Refaei Y, Al-Hajry M (2006) Factors influencing the adoption of internet banking: A Descriptive Case Study Analysis. International Journal of financial services management 1: 155-172.
20. Vepa K (2001) Information Technology Challenges to Banks. Reserve Bank of India Bulletin.
21. Lockett A, Littler D (1997) The adoption of direct banking services. Journal of Marketing.
22. Malhotra RN (1990) On the Occasion of Bank Economists Conference – Banking In 1990s. Reserve Bank of India Bulletin.
23. Prema C (2013) Factors Influencing Consumer Adoption of Internet Banking in India. Karunya School of Management, Karunya University, Coimbatore, India.
24. Tiwari R, Buse S (2006) Mobile Banking: The Mobile Commerce Prospects: A Strategic Analysis of Opportunities in the Banking Sector. Research Project, University of Hamburg, Germany.
25. Raman SR, Alam N, Mphil MK (2008) Information Technology in Malaysia: E-Service quality and uptake of Internet Banking. Retrieved on [January 2010] from world wide http://www.arraydev.com/commerce/JIBC/2008-08/JIBCArticle_MuraliRaman.pdf
26. Mittal S, Gupta A (2007) Internet Banking in India: Usage Pattern Roadblocks and the Strategies for Improvement, USMS, Guru Gobind Sign, Indraprastha University, Delhi.
27. Sarangapani A, Mamatha T (2008) IT Initiatives in E-banking and its Security Aspects” Professional Banker.
28. Snel R (2000) On-line bill payment is falling short of promise. American Banker 65.
29. Somali SA, Gholami R, Clegg B (2008) Internet Banking Acceptance in the context of Developing Countries: An Extension of Technology Acceptance Model.
30. Venugopal D (2004) Technology in Banks: Some Thoughts for the Future. Professional Banker.
31. Wang Y, Lin H, Tang T (2003) Determinants of User Acceptance of Internet Banking: An Empirical Study. International Journal of Service Industry Management 14: 501-519.