

## **Factors influencing consumer perceptions towards on-line banking – Chennai**

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**Abstract:** *This research study was an attempt to investigate the factors influencing online banking and consumer acceptance towards on-line banking in Chennai. All the banks in India offer similar services are different in terms of service quality. The behavioural characteristics of online banking users were examined. Respondents from three different banks in Chennai participated in the survey. In this study, total service quality in the selected dimensions with the help of a structured questionnaire filled by customers of selected banks. The results showed that perceived usefulness was the key factor in explaining the variation in online banking acceptance. Furthermore, the issue of security and quality of internet connection were found to be least important factors that motivated consumer acceptance of on-line banking.*

### **Introduction**

On-line banking is the term used for new age banking system. On-line banking is also called as internet banking and it is an outgrowth of PC banking. On-line banking uses the internet as the delivery channel by which to conduct banking activity. On-line banking is very helpful to, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages and purchasing financial instruments and certificates of deposits (Haque et al, 2009). Traditional functions of banks are limited to accept deposits & to give loan & advances. Banking system in India has undergone significant changes during last two decades. Information technology has given rise to new innovation & transformation. Today's banking is known as innovation banking. Banks are on the urge of major changes where the single largest force behind the transformation is Information technology. Thus on-line banking has been an important part of Indian banking sector. Online transaction are made using internet explorer. For On-line banking any user with personal computers can browse and get connected to their banks web sites to perform any of the virtual banking functions. The various services offered under on-line Banking include,

- 1 Debit card/ credit card / smart card
- 2 ATM
- 3 Electronic fund transfer system (EFT)
- 4 Electronic banking systems
- 5 Mobile banking
- 6 Phone banking
- 7 Demat A/c etc.

On-line banking is a result of explored possibility to use internet application in one of the various domains of commerce. Private Banks in India were the first to implement internet

banking services in the banking industry. Private Banks, due to late entry into the industry, understood that the establishing network in remote corners of the country is a very difficult task. It was clear to them that the only way to stay connected to the customers at any place and at any time is through internet applications. They took the internet applications as a weapon of competitive advantage to corner the great monoliths like State Bank of India, Indian Bank etc. Private Banks are pioneer in India to explore the versatility of internet applications in delivering services to customers.

### **Statement of the Problem**

The banking sector constitutes a predominant component of the financial services industry. In the era of ever changing global business environment, a healthy as well as well-balanced banking system is considered to be quite essential for any economy striving for growth and prosperity in the world of modern finance. Customers are the lifeblood of any business and all the business activities revolve around the needs and preferences of the customers. Same thing applies to the banking sector as well. The customers' need for excellent services keeps changing. On-line banking has become the main interest in the industrial world especially in the service industries. It influences customer value and customer satisfaction which in turn leads to customer loyalty. Customer perceptions of on-line banking have greater potential to make correct decisions and deliver true value services to customers. Online banking plays an important role and provides several innovative services. The survival and growth of online banking depends on the quality of services rendered to the society and its ability to compete with private and foreign banks. This leads to various research issues. They are: What are the various services provided by the banks? How to measure the service quality of a bank? What is the impact of service quality dimensions on the overall service quality? Which service quality dimension should banks consider while evaluating the quality of banking services? How can these service quality dimensions be used to measure the quality of services? How do customers perceive the quality of different aspects of the banking services? Hence, this led to a scientific and systematic investigation of these issues. The paper makes an attempt to scrutinize the quality of services provided by the banks and the customer's perceptions towards on-line banking in Chennai.

### **Need For the Study**

Prior to the liberalization policy in India, there were no private and foreign banks in the market. Liberalization opened the banking sector to private and foreign players. This has provided the customers of banks with a wide range of choice. To maintain customer base, banks have to now focus on the service quality so that customers remain satisfied. With the phenomenal increase in the country's population and the increased demand for banking services, speed, and service quality and customer satisfaction are going to be the key differentiators for the success of banks in the future. Good business growth is achievable only with good customer services and with a good image of banks. So the bankers have to understand the perceptions of their customers towards the service quality in banking. Hence the descriptive study has been undertaken to know the variables on the banking service quality.

### **Theoretical Framework**

#### **Internet Banking Benefits**

Various benefits can be obtained by the banks by providing internet banking services. The benefits as follows

## **Reduce Costs**

The cost reduction occurs due to the nature of internet banking which is a fixed cost, contrast with conventional banking services which are variable costs where costs will continue to grow along with the addition of branches, number of employees, and working hours. Nature of internet banking is not limited by time (24 hours a day 7 days a week), is self-accessible, and can reach all customers network. Internet banking is able to provide solution for high cost conventional banking services providing.

## **Increase Customer Base**

Corrocher (2002) stated that one of the benefits from internet banking is the increase in the customer base. This can occur because the nature of internet banking is that it can be accessed by all customers from anywhere and anytime. It is different from conventional banking system, in which new branch offices that are only able to reach customer base in a certain area are established.

## **Marketing and Communication Media**

One of the benefits from internet banking is that it can be a media of marketing and communication for its banking company as a service provider. Corrocher (2002) stated that through the internet media, information process delivery and the latest updates from the bank can be performed efficiently and accurately because each message is sent directly to each user and so the message doesn't need to be broad to target information that is not supposed to.]

## **Increase Customer Satisfaction and Loyalty**

With the use of internet banking, frequency of customer visits to bank can be reduced and so customers can save their time and cost. Banks also can create more loyal customers by offering various financial services through their website. Sites that offer a wide range of financial service will increase customer dependence on the services offered, thereby enabling banks to generate higher revenue from each customer.

## **Generate High Profit**

By increasing the customer's dependence frequency toward internet banking, banks can increase their profit. In order to develop contextualized research model for the study three independent variables and a dependent variable was selected. Predicting variables included security and privacy, perceived usefulness and quality of internet connection while consumer acceptance of online banking is taken as criterion variable.

## **Literature Review**

Rashmita Sahoo (2013): According to her, the banks operating in India have failed to convince their customers on their CRM efforts. Various CRM initiates and dimensions measured in this study report unfavourable response. This under-performance has occurred in spite of technological developments and new processes in place. Now a day's banks are more focusing on marketing strategy. The dynamics of the marketplace have created pressure on employees for pushing products to the customers rather than trying and facilitating good experience to the customers.

Anamica Chopra, Usha Arora and Rajiv Arora (2012): According to their views, there is no significant difference in the perception of customers of various age groups in all the

CRM dimensions and also in the case of gender and occupational levels of the customers, there is no significant difference in the perception of customers towards all CRM dimensions. So it can be said that all the CRM dimensions are interrelated with each other.

Himani Sharma (2011): According to her, e-banking helps in improving the relationship between bankers and customers and also the bankers expressed confidence that such bonds would bring improvement in the overall performance of banks. This study also reveals that there is greater incidence of e-banking usage among the middle age customers (30 to 50 years of age).

Namita Rajput (2011): According to her, there is an increasing trend in performance of Indian banks caused by IT innovation and enlarged investment in new information technology. The banks were left with no option but to improve their functional attitude, strategies and policies, efficiently allocating the IT elements with proper guidelines to use them in the presence of required trained staff. There is not so much difference in PSBs and PRSBs but when compared PRSBs are the best.

R.K Uppal (2011): According to him, IT is playing a crucial role to create the drastic changes in the banking industry particularly in the new private sector and foreign banks. Public sector banks of India are still behind in regarding the various financial parameters. This paper also reveals that introduction of IT alone will not be sufficient to bring necessary performance improvement and to get the competitive edge intellectual people are required to use such technology.

Sana Haider Sumra (2011): According to her, the main motive for e-banking identified by the all bank managers was their customers, to amplify their clientage, to increase customer satisfaction, retention and business expansion which would eventually gain them more profits. Managers have shown a positive attitude towards e-banking; they have concluded that e-banking is enhancing profitability and financial positions of banks and banks are striving hard to provide more and more services to their customers and to move towards advance and modern e-banking services also developing infrastructure. They revealed that till 2013 banks will completely adopt e-banking and it all dimensions.

T.Satya Narayana Chary and R. Ramesh (2011): In this study comparison between SBI & HDFC was made and it was found that in almost all issues the working performance of HDFC and SBI is similar but differs in certain aspects only. The SBI though it is public sector bank is taking much care in implementation of CRM, fine tuning and finally putting it in track. Whereas HDFC was not 'at par with SBI in most of the aspects like database management, responding to the customers etc.

Muhammad Asif Khan (2010): The rapid growth in use of ATMs offers opportunities to banks to use customers' passion for this innovative service for strategic advantage is what the basic statements of the research. ATM customers perceive the essential dimensions of ATM service quality provided by their banks. Quick response to customers' needs and queries about the ATM related services are important to improve the service standards of ATM. This would facilitate customers to participate in improvement of service quality, learn and perform, and have a pleasant experience through two-way communication.

Samsudin Wahab, Nor Azila Mohd. Nor and Juhary Ali (2009): The main objective of this paper was to investigate the relationship between technology trust and CRM performance, the relationship between CRM performance and e-banking adoption and last to investigate the mediating effect of CRM performance in the relationship between technology trust and e-banking adoption. It was found that the technology trust is important for CRM performance and e-banking adoption and also CRM performance has a significant impact on e-banking adoption.

Sultan Singh and Komal (2009): This paper examines that satisfaction level is highest in SBI, second is ICICI bank and third is HDFC bank. This is due to the size of the respective

bank and number of years of its establishment. But according to customer satisfaction i.e. in terms of efficiency and performance, HDFC Bank is at 1st position, 2nd is ICICI Bank and 3rd is SBI. After considering all the elements of customer satisfaction they are combined together to find out the overall customer satisfaction level. The overall customer satisfaction level is the combination of three parameters i.e. fee charged, frequency of the problems faced and the post purchase behaviour.

Arpita Khare and Anshuman Khare (2008): This paper focused on the impact of CRM which is enhancing the efficiency of the Indian financial sector. The central concept behind CRM is creating value for the customer. Most of the banks have realized that to stay in business, it is not imperative to maximize revenue from single transaction but to build a lasting sustainable relationship with the customer.

Broadie et al(2007): As per the author the prediction of the e-banking is leading to a paradigm shift in marketing practices resulting in high performance in the banking industry. Delivery of service in banking can be provided efficiently only when the back ground operations are efficient. An efficient back ground operation can be conducted only when it is integrated by an electronic system. The components like data, hardware, software, network and people are the essential elements of the system. Banking customers get satisfied with the system when it provides them maximum convenience and comfort while transacting with the bank. Internet enabled electronic system facilitate the operation to fetch these result. An in-depth analysis would help to understand that internet enabled electronic bank system differentiates from traditional banking operation through faster delivery of information from the customer and service provider. Additionally, it has to be noted that the banking operations does not transfer physical currencies instead it transfer the information about the value for currencies. I-banks enable transfer of information more swiftly on-line. (Salawu et.al, 2007). In service organizations like banks, information flows more than physical items. In the commercial world, especially in most advanced societies today, money is rather carried in information storage medium such as cheques, credit cards and electronic means that in its pure cash form.

Christopher et al (2006): According to this, E banking has become an important channel to sell the products and services and is perceived to be necessity in order to stay profitable in successful. The perception is the formed as a result of interpreting the experience. There is a growing interest in understanding the users' experience, as it is observed as a larger concept than user satisfaction.

Al-Hawari et al., 2005): Suganthi, et al. (2001): Conducted a review of Malaysian banking sites and revealed that all domestic banks were having a web presence. Only four of the ten major banks had transactional sites. The remaining sites were at the informational level. There are various psychological and behavioural issues such as, trust, security of internet transactions, reluctance to change and preference for human interface which appear to impede the growth of Internet banking

Wilson & Sasse, (2004): Customers have started perceiving the services of bank through internet as a prime attractive feature than any other prime product features of the bank. Customers have started evaluating the banks based on the convenience and comforts it provides to them. Bankers have started developing various product features and services using internet applications. From this perspective, assessing the user experience is essential for many technology products and services.

Corrocher (2002): The study investigated the determinants of the Internet technology adoption for the provision of banking services in the Italian context and also studied the relationship between the Internet banking and the traditional banking activity, in order to understand if these two systems of financial services delivery are perceived as substitutes or complements by the banks. According to the results of the empirical analysis, banks seem to

perceive Internet banking as a substitute for the existing branching structure, although there is also some evidence that banks providing innovative financial services.

Dabholkar & Bagozz, (2002): provide a theoretical analysis of Internet banking in India and found that when compared to banks abroad, Indian banks offering online services still have a long way to go. For online banking to reach a critical mass, there has to be sufficient number of users and the sufficient infrastructure in place. IT, has introduced new business paradigms and is increasingly playing a significant role in improving the services in the banking industry. Internet banking is becoming more and more popular today, as is banking via digital television. Beyond doubt, a substantial part of the future of banking business lies in a banking environment that is less and less branch-based and where customers are able to access banking services remotely. The automated service quality research has been limited to relationship management rather than service quality or its acceptance by consumer. Even comprehensive definition of banking service quality is lacking Innovative Marketing, Volume 3, Issue 4, 2007 (Parasuraman et al., 2005).

Polatoglu & Kin (2001): That the average internet banking transaction costs the institution only one twentieth of a teller transaction. An extensive study conducted in 2001 by the Consumer Bankers Association indicates that Internet banking usage remained stagnant from 1996 to 1998, with less than 10% of the market utilizing the service. This characterizes the early adoption phase where the banking industry, in its striking transformation, has embarked on an era of 'anytime, anywhere' banking.

Reil et al., Long & McMellon, (2001); Point out that automated service is still at its infancy stage and that there is no generally accepted theoretical conceptualization of automated service quality. Banks that had the capability of implementing such a system became the first movers and focused primarily on the technological benefits offered by such a setup in order to capture technology enthusiasts at that time. Since then, Internet banking has been able to successfully cross the chasm as a complete service within the financial services industry but not up to the mark. As mentioned above, technologies in the early market provided many single services and not complete solutions during this period. These examples demonstrate the development of a complete service that becomes widely used within a small segment of the pragmatic early majority, representing an entry into the bowling alley. Conclusions of study undertaken for European Commission on public perceptions (September, 2003) say that lack of trust has been frequently cited to be one of the key factors that discourage customers from participating in e-commerce, while cultural differences affect the formation of trust. Apart from trust, there are other variables which influence the usage of Internet banking. They are intention, beliefs, and subjective norms, trust in the bank, attitude, perceived usefulness and perceived ease of use (Journal of Services Research, 2007). Demography may also affect the usage pattern of Internet Banking. It is interpreted that the female respondents are yet to get fully involved in Internet purchase (Journal of Internet Banking and Commerce, 2006). Therefore, enhancing the level of service performance acceptance is the major issue to get competitive advantages

Black et al. (2001): Performed a qualitative study on the adoption of internet services and found out that those with the highest income with a greatest use of information technology were most likely to purchase financial services using internet channel. Education and gender were not considered in this study. In addition to internet banking, service quality, telephone banking and ATM service quality need to be addressed in particular service environment. Earlier studies (Barczak et al., 1997; Danniel & Strong, 1997; Lia et al., 1999; Polatoglu & Ekin, 2001; Devlin & Yeung, 2003) report factors such as convenience, flexibility, security concern, complexity, and responsiveness being associated with a higher propensity to use internet banking.

## **Objectives of the Study**

1. To measure the awareness level of the customers towards services provided by the bank
2. To analyze the satisfaction level of the customers with reference to banks.

## **Hypothesis of the study**

$H_1$ : Awareness of service and perceived usefulness will have a positive impact on an individual's acceptance of online banking services.

$H_2$ : Security and privacy will have a positive effect on consumer acceptance of online banking services.

$H_3$ : Quality of internet connection will have a positive effect on consumer acceptance of online banking services.

## **Limitations**

Data collection has been done from limited banks; hence findings have got their own limitations. Respondent might be biased and not interested to give complete information. Time factor was the limitation as the consumer did not have appropriate and adequate time to solve my queries.

## **Research Methodology**

### **Participants**

The population comprises of bank customers who use online banking services in the Chennai area. An attempt was made to collect responses from customers of selected banks in Chennai.

### **Procedure**

It was also decided to collect at least 70 questionnaires from each of the bank for equal representation, therefore, a total of 100 questionnaires were floated in each bank using non-probability convenience (accident / haphazard) sampling method. The entire questionnaires were distributed to the respondents through self-administered approach. Questionnaires were completed anonymously by the respondents and returned back to the researcher.

### **Measures**

The questionnaire used in this research was adopted from the consumer acceptance of online banking (Pikkarainen et al., 2004). Questionnaire was slightly modified in view of the variables of the study. It had two sections, one for demographical information and the other to measure consumer acceptance of online banking. The responses for questions made use of circling answers and at the end space was given for recording their personal comments. The respondents were required to select the appropriate number given against each statement best explaining their attitude. Demographic section was based on tick-boxes and consisting of seven questions on age, gender, qualification, job status, income level, total experience in their respective organizations and nature of the organization. To measure perceived usefulness, total of 10 items were given, for quality of the internet connection it was two, while to measure security and privacy five items were given. All the items were measured based on five point likert scale ranging from 1. Strongly disagree, to 5. Strongly agree, developed by Renis Likert. Moreover, a five point likert scale ranging from 1. Almost never, to 5. Almost always was also used to measure acceptance of online banking on the basis of

five items. These scales were also used in previous TAM related researches (e.g. Igbaria et al., 1995; Teo et al., 1999; Pikkarainen et al., 2004).

## Data Analysis

**Table 1: Demographic analysis**

Age	20 or below	84	38
	21-25	105	48
	26-30	8	4
	31-35	4	2
	36-40	2	1
	41 or above	17	8
Gender	Male	154	71
	Female	63	29
Income level	Below 10000	25	23
	11000-20000	31	28
	21000-30000	11	10
	31000-40000	7	6
	41000-50000	9	8
	Above 50000	28	25
Highest level of education	Bachelors	164	77
	Masters	45	21
	MS / M.phil	1	0
	Ph.D	3	1
	Less than one year	39	35
	1-5 yrs	36	33
Years with this organisation	6-10 yrs	13	12
	10 or above	22	20
Nature of organisation	Public	43	43
	Private	58	57
Job	Managerial	52	49
	Non managerial	55	51

The descriptive analysis of all the variables is shown in table1. The mean values for all the independent variables are above 3.70. Since 5-point likert scale was used therefore anything above 3 is going in favour of our hypothesis. The standard deviations for perceived usefulness, quality of internet and security and privacy are 0.70, 1.01 and 0.69 respectively. The SD of PU (0.70) and security and privacy (0.69) are showing that the mean values are not deviating much in these variables.

**Table 2: Correlation analysis**

	Mean	Std.Deviation	Perceived usefulness	Quality of internet	Privacy and security	Attitude towards online banking.
Perceived usefulness	3.737	0.703	0.857			
Quality of internet	3.756	1.010	0.344**	0.826		
Privacy and security	3.711	0.695	0.557**	0.324**	0.743	
Attitude towards online banking	3.374	0.888	0.489**	0.202**	0.351**	0.811

\*\* Correlation is significant at the 0.01 level (2-tailed).

To know the relationships between variables Pearson Product moment correlation was used. Results indicate that perceived usefulness, quality of internet and privacy & security are positively correlated with adoption of online banking services. Correlations of all the factors with use of online banking are displayed in Table II.

The correlation value for PU is significant (0.49) among other relationships. Thus there lie a positive relationship between perceived usefulness and consumer acceptance of online banking. However, there is also a positive relationship between other two variables (i.e. quality of internet connection and security and privacy) and consumer acceptance of online banking, but these relationships are not as much significant.

Regression analysis was also applied to know the impact of our three explanatory variables on acceptance of online banking. Results show that 24% of the variation in online banking acceptance is determined by the predictors of the study. The values of coefficient of determinations are found as 0.53, 0.02 and 0.14 for perceived usefulness, quality of internet and security and privacy respectively. The *t* value for PU is showing significant relatedness while the *t* values for other variables are showing insignificant effects. The regression analysis shows that 24% of the acceptance of online banking depends upon PU, quality of internet and security and privacy while rest of the 76% dependence is on some other variables which are not taken in this study. The results of regression analysis are shown in Table III.

**Table 3: Regression analysis**

Dependent Variable	Independent Variables	Adjusted R square	Beta	t Stat	P-Value
Attitude towards online banking	Perceived usefulness		0.5309	5.8031	0.0000
	Quality of internet		0.0190	0.3399	0.7343
	Privacy and security		0.1408	1.5332	0.1267

## **Discussions and Findings**

This study shows that the major factor that influences the consumer acceptance of on-line banking in the city of Chennai is perceived usefulness. According to the results, security concerns and quality of internet connection do not have any significant impact on on-line banking. Due to gradual growth of on-line banking in Chennai market, banking sector is motivated to offer online services parallel to traditional services. As more and more banks are implementing online banking services in their operations, therefore it is of worth importance for these organizations to know the most striking factors having impact on the customer attitudes towards acceptance and use online services. Descriptive analysis showed the positive trend of the variables. Students favoured the idea that using an online banking system enhances their effectiveness of utilizing banking services and they receive enough information about online banks. Furthermore, they are also found satisfied with the security and privacy measure. These are the reasons that they prefer to use online services than traditional services. A relatively higher correlation value between usefulness and online banking acceptance shows that when customer feels that online banking system is useful then it enhances the utilization of banking services and they start preferring online services than traditional services. A significant correlation value between perceived usefulness and online banking acceptance supports the Hypothesis

H1. In many of the previous researches, it was found that perceived usefulness had been one of the most influencing factor in technology acceptance as Al-Somali (2009) found that PU was a key measure in developing positive attitude towards online banking. In our research, this finding has also been validated that PU influences more than any other factor. Second relatively higher but insignificant correlation value between privacy & security and online banking acceptance shows that when clients are satisfied with the security measures of the bank then ultimately it develops positive attitude towards online banking which ultimately lead towards online service acceptance. The reason behind this can be the satisfaction of customers with their banks regarding security and privacy. This is the reason they are not much concerned with the security and privacy issues. Another reason can be the security measures taken by the banks in Chennai for making the transactions secured and keeping their information confidential. Regression results showed that when clients feel that online banking services are secure and risk free and it would improve their performance then ultimately it establishes a positive feelings towards online services provided if their internet connection doesn't hamper this process. However, the results for quality of internet were not significant. It reveals that the quality of internet in Chennai is appreciable their no significant impact was concluded. Similarly in Finland, Pikkarainen et al. (2004) found that quality of internet has no statistically significant effects on the acceptance of online banking whereas in Jeddah Al-Somali et al. (2009) found the quality of internet connection as a significant factor impacting customer attitudes towards online banking. This was the prime reason for making our hypothesis H3 but it could not be substantiated. After analyzing data, this factor is found insignificant towards consumer acceptance of online banking and the reason behind this can be the sustained problem free internet facilities.

## **Conclusion and suggestion**

Bank should take initiative to organize training campaign for their customer to boost use of on line banking. Easy method to operate online banking should be installed by the bank so as to make more and more customer to use net banking. More efforts should be taken by bank in undertaking advertisement and promotional campaign so that greater awareness among consumer is created. More focus should be given on appropriate network facility in the Chennai region. On line banking has become very important for the survival of bank in the

changing banking industry. The paper has tried to explain the important factors to evaluate the customer perception and psychology towards on-line banking in the Chennai region. Overall it is suggested that bank should follow strategies of on-line bank like use of technology to provide innovative products and services to challenge the competitive environment. If it does not follow the new work culture, they will soon be out of the race, as customers expect better services with attractive package. A satisfied customer is an asset for the bank and hence adds to the banks goodwill.

## References

Afsar, B, Rehman, A and Ullah, R. (2010), Customer Relationship Management, Lambert Academic Publication, Germany.

Brodie, H Winklhofer et. al (2007). Is e-marketing Coming of Age? An Examination of the Penetration of e-marketing and Firm Performance. *J. Innterac. Market*, 21:2-21

Christopher, G. C. Mike, L. Visit and W. Amy (2006). A Logit Analysis of Electronic Banking in New Zealand. *Int. J. Bank Market*, 24:360-383

Cronin, M.J. (1997), Banking and Finance on Internet, John Wiley & Sons.

Munir, A. (2004), Internet Banking: Law and Practice, Lexis Nexis Publication.

Chopra, A. (2012), An Empirical Study on Customer Perception towards CRM practices in Foreign Banks. *International Journal of Management Sciences*, Vol. 1(2).

Chary, T. (2011), "Customer Relationship Management in Banking Sector- A Comparative Study" *IJRHRM*, Vol. 1, No. 2.

Hiltunen, M., Laukka, M., & Luomala, J. (2002). Mobile User Experience. Helsinki: IT Press

Joseph, M., McClure, C. and Joseph, B. (1999). Service Quality in Banking Sector: The Impact of Technology on Service Delivery. *International Journal of Bank Marketing*, 17 (4):182-191

Khan, M.A. (2010), "An Empirical Study of Automated Teller Machine Service Quality and Customer Satisfaction in Pakistani Banks", *European Journal of Social Sciences*, Vol. 13, No. 3.

Khare, A. (2008). Managing Customer Relationship using CRM technology in India's Financial Sector. *Journal on Banks and Bank System*, Vol. 3(1).

Sahoo, R. (2013), "A Study of Customer Perception and Importance of CRM Initiative in the Indian Banking Sector", *VSRD International Journal of Business and Management Research*, Vol. 3 No. 2.

Singh, S. K. (2009), "Impact of ATM on Customer Satisfaction (A Comparative Study of SBI, ICICI & HDFC Bank)", *Business Intelligence Journal*, Vol. 2, No. 2.

Uppal, R.K. (2011), "e-Age Technology- New Face of Indian Banking Industry: Emerging Challenges and New Potentials", *Journal of Social and Development Sciences*, Vol. 1, No. 3.

Wahab, S. (2009), "Technology Trust and e-banking Adoption: The Mediating Effect of Customer Relationship Management Performance", *The Asian Journal of Technology Management*, Vol. 2, No. 2.

Sinha, A. (2012), "Moving Towards Technology-led Excellence in Banking", *Speech*, RBI Monthly Bulletin.