CHAPTER-II
REVIEW OF LITERATURE

2.1. Introduction

This chapter attempts to make a brief review of the studies made in different aspects of E-Banking connected with the present study by researchers in India and abroad. The various reviews collected from national and international research journals, publications, thesis, project reports, RBI publications, annual reports of various banks and other documents related to customer perception on E-Banking services. This helps to achieve clarity in the discussion and provides guidance to adopt the precise measurement of variables to be studied and which different experts have studied and analyzed.

2.2. E-Banking

Elizabeth (1999)\(^1\) studied the recent provision of electronic services provided by retail banks in UK and the Republic of Ireland and also identified the banks implementation of the innovative offerings and an organization approach to innovation and their view of the current and future market. The study found that 25 per cent of the banks in the UK and the Republic of Ireland which customers to this survey were already providing online transactional services to customers in their homes. The majority group of 50 per cent customers are those that are currently testing or developing services such as personal computer, internet banking, managed network and T.V-based services, whereas minimum of 25 per cent of the customers were in organizations not providing such as personal computer, internet banking, managed network and T.V-based services. Therefore, it is vital to conduct the same study from customer a point of view at the corporation level of Tamil Nadu.

Kolodinsky (2004)\(^2\) explored factors that affect the adoption to three E-Banking technologies such as automatic bill payment, phone banking and personal computer banking. The researcher identified six factors namely relative advantage, complexity/simplicity, compatibility, observability, risk tolerance and product


involvement are associated with adoption. The study concluded that the relative, advantage and compatibility are significant with E-Banking technologies and trialability, simplicity, observability, risk, and safety are not significant with E-Banking technologies.

Yang et al., (2007)\(^3\) identified current trend and development of the application of E-Banking in rural areas and also investigated that economic impact on local financial institutions. The result showed that small and local community banks have presently lower percentage awareness of E-Banking customers. Hence, the researcher conform the perception that the addition of innovative E-Banking services will reduce banks operating cost, save time, paperless and increase the quantity of customer satisfaction. Small and community banks should speed up their effort in using some recent new technologies e.g., mobile banking, internet banking and any where banking etc.

Mobarek (2007)\(^4\) studied four commercial banks in Botswana namely Standard Chartered Bank, First National Bank, Barclays Bank and Bank of Baroda. All these banks are provided E-Banking services to their customers. This study focused on four major electronic delivery channels such as ATM, internet banking, phone banking and manual banking. It was concluded that banks should draw themselves in the entire particular regarding E-Banking to find out ways that was affect the customer in Botswana and use it to their get enormous benefit. Therefore, it is essential to investigate perception of customers’ about E-Banking services.

Tsoukatos (2008)\(^5\) identified the main determinants of customers’ perception on E-Banking services, examined the effects of service development on customer satisfaction and evaluated banks’ performance regarding key E-Banking excellence areas. The study identified that four electronic banking factors namely personalized service, innovation, accessibility and convenience and transaction security. The study found that customers perception on banks underperform in being


harmonized with the needs of their customers in all the services and also suggested that special priority should be given to improving security in ATM banking and educating new customers.

Ching Poon (2008)\(^6\) studied customers’ acceptance of electronic banking services in Malaysia. The researcher identified ten factors such as convenience of usage, accessibility, availability of features, bank management and image, security, privacy, design, content, speed and fees and charges. The result showed that out of ten factors accessibility, convenience of usage, design and content are the major sources of satisfaction privacy and security are the main sources of dissatisfaction. Whereas, the availability of features, speed, service charges and bank management are dangerous to the success of the E-Banking services. Hence, the researcher is to identify that satisfaction level of security point in E-Banking services.

Mathur and Khan (2008)\(^7\) examined the recent technological trends issues and challenges in banking sector, identified the penetration, adoption and usage of E-Banking technologies namely ATM, internet banking, phone banking and payment and settlement system and also investigated that the factors influencing the usage by customers. It was concluded that Indian banks provided online services compare to foreign banks. Even though, customers find it convenient and cost effective way to bank through ATMs, phone banking remains significant for customers’ retention and personalized services. Hence, commercial banks day to day introduce new innovative products and services for valuable our customers. Therefore, it is important to identify the perception of customers’ about ATM, Mobile Banking, Internet Banking and Mobile Banking services.

Adekunle et al., (2009)\(^8\) examined the influence of personal profile and electronic banking on perceived customer’s service delivery in the Nigerian Banking Sector. The result showed that the sex of sample respondents has a significant influence on customers’ perception on quality of service delivery and also examined


there was no significant influence of age on customers’ perception of quality service delivery.

Yang and Ahmed (2009)\textsuperscript{9} investigated the present trend and improvement of E-Banking industry and also provided administrative insights for the banking industry in those underdeveloped nations. The research showed that even in a under developed nation, the application of E-Banking can help their local banks to reduce paper less, time, costs for bank and provide a better and quick service to their customers. There was a huge gap between developed nation (like the USA, European nations, and China) and under developed nations (like Bangladesh) in terms of application of E-Banking services.

Yang and Cheng (2009)\textsuperscript{10} discussed a comparative study about the issues of recent accessible E-Banking services among the young customers between China and USA. The findings of the study provided some important and perceptive guidelines for the future improvement of E-Banking services in both nations and global level. The gap between two nations regarding the awareness and usage of E-Banking services was relatively significant. Customers face some critical problems such as less availability of services and poor service quality. Chinese customers were more willing and access to new available services like internet banking services and mobile banking services. US customers are less aware about internet banking and mobile banking services because they are less educated customers.

Tan et al., (2010)\textsuperscript{11} identified factors influencing adoption of E-Banking and mobile banking services and measured customers’ preferences in choosing between E-Banking and Mobile banking when conducting transactions. The findings of the study indicated that perceived usefulness, perceived ease of use, convenience, computer efficiency, device features and security were major influence the adoption of E-Banking services. Similar findings are obtained for mobile banking adoption,


except for mobile phone efficiency and device features. The maximum of customers prefer from E-Banking to mobile banking because they have mobile phone in pocket. Hence, it is essential to analyze the various features of mobile banking services.

Elisha (2010) explored the major attributes responsible for internet banking based on customers’ perception on different E-Banking technologies. The study found that E-Banking serves more advantages to Nigerian banking sector. Factor analysis found that security, time factor, queue management, fund transfer, accessibility and user friendly are main factors influencing to E-Banking services. Out of 750 customers, 660 customers were agreed with factor of convenient and flexible of E-Banking services. Hence, now-a-days most of the departments link with banking sector because all the payments are made through online banking services. In this connection one has to find out the level of awareness urban people in internet banking.

Masochal et al. (2011) find out what extent do banks implement innovative banking technologies in marketing strategies and practices and investigated the customers’ perceptions on the level of satisfaction gained through the use of technology in transactions with their banks. The findings showed that most of the customers’ indicated that they were influenced to bank with a bank which uses advanced new banking technologies. Therefore, innovative banking channels namely mobile banking, credit card, debit card, SWIFT and internet banking reflected very low levels of usage by customers and also maximum of customers’ prefer from E-Banking methods to traditional banking methods. Unluckily, there was a vast gap between ownership and usage of E-Banking resources entailing that there was no effective consumption of technologies owned by rural customers. Therefore, it is necessary to identify what level of modern banking technology services was expected by the urban people.

Khan and Fozia (2011)\textsuperscript{14} identified the customers’ perception on traditional banking and E-Banking services and also investigated the character of internet and core banking services offered by banks in traditional banking and E-Banking. The study was concluded that the informational, modified and self service assistance improved the existing function of traditional banking. Online services were differentiating from traditional retail banking to E-Banking. E-Banking makes obsolete, the technological knowledge of traditional banking. In addition, the new value propositions of E-Banking will create the fundamental changes in business model dimensions such as customer value, cost structure, customer base, market sector and revenue source. Finally, both the technological knowledge and business model dimension between traditional banking and E-Banking are definitely different. Therefore, it is essential to identify the customers’ perception of E-Banking services provided by commercial banks in corporation of Tamil Nadu.

Malarvizhi (2011)\textsuperscript{15} presented an outline of E-Banking services provided by both public and private sector banks in Coimbatore city, identified the level of awareness and usage of E-Banking services and also measured the customer’s level of satisfaction regarding different type of E-Banking services. The data has collected through well structure interview schedule. The study found that customers are more satisfied with the public sector banks than the private sector banks. It suggested that the customers have more knowledge to use of every new E-Banking technology. On the whole, E-Banking increased customers’ satisfaction and operational efficiencies and reduces costs, besides giving a platform for providing attractive services to the customers.

Beikzad et al., (2011)\textsuperscript{16} investigated the comparative of customer’s perception of risk in E-Banking process and traditional banking process. Customers risk perception classified into six heads like total risk perception, physical risk


perception, performance risk perception, psycho-sociological risk perception, financial risk perception and time risk perception. The study found that there was a difference between customers risk perception in E-Banking process and traditional banking process and also there was difference between customers physical, performance, financial and time-consuming perception of risk in E-Banking process and traditional banking process. The study suggested that banks need to develop communication skill, enlarge customers’ personal privacy by enhancing security system of banks and train customers to know the current technology and also increase the effectiveness of ATM machines. Hence, it is necessary to analyze the security level of E-Banking services regarding ATM, mobile banking, internet banking and phone banking.

Gbadeyan and Akinyosoye (2011)\(^\text{17}\) analyzed the customers’ choice of banks influenced by the quality of E-Banking services. Stratified sampling technique was adopted. It was concluded that E-Banking has become significant phenomenon in the banking industry and it continues as more progress was made in information and communication technology. This study recommended that different measures should be put in place to guarantee more security such as installation of encrypted software, regular change password, verification system of customer’s identification cards and one time password such as the use of alphanumeric amongst others.

Oye et al., (2011)\(^\text{18}\) covered the operational issues related to E-Banking as well as customer perception on the usage of E-Banking a case study of Askari bank, Pakistan. The result indicated that the customers were not ready to use modern technology because their satisfaction level with E-Banking was little. Customers have low level of awareness about E-Banking services. High speed internet and government rules and regulations were not supportive for E-Banking in Pakistan. Customers’ usage to internet banking services is low because of different attributes. These attributes includes non- security transaction, low speed of internet connection, more internet charges, literacy rate low and low capability to accept new technology


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Hence, it is to investigate on who is ready to take E-Banking services such as former, government employee, private employee, businessman and profession.

Joshua and Koshy (2011)\(^\text{19}\) examined the different usage patterns by customers of the technology enabled services provided. In India, most of the banks offering service a mode of electronic banking such as ATMs, internet banking, phone banking and mobile banking. The study was conducted among the customers of some of the leading banks in India who were residing in the selected metro, urban and semi-urban bank centers in India. The findings showed that customers have more aware about ATMs and the level of adoption of other electronic banking means like Internet banking, phone banking and mobile banking in spite of their potential were yet to pick in a big way.

Sharma (2011)\(^\text{20}\) investigated bankers views about E-Banking and also examined bankers perception on E-Banking activities of customers, impact of E-Banking and promotional measures used by banks to promote E-Banking. The study showed that there was little awareness in Indian customers regarding use of E-Banking services and also indicated that E-Banking helps in developing the association between bankers and customers. The study concluded that banks frequently resort to the use of print media followed by internet, familiar magazine, bit notices, short message service on mobile, advertisements and T.V.

Malika Rani (2012)\(^\text{21}\) studied customers perception on electronic banking services and also measured the satisfaction level of customers towards electronic banking services. The findings showed that maximum of 60 per cent of customers have positive perception on E-Banking services. Customers are more satisfactory with E-Banking services except one parameter like E-Banking is easy to use. The rural area customers are not using innovative E-Banking services frequently because they have less knowledge about internet and computer so customers hesitate to use in using E-Banking services.

Uppal (2012)$^{22}$ examined the customers' perceptions on electronic services and also analyzed the what are the problem faced by bank customers while using electronic channels. The perceptions of bank customers regarding essential of E-Banking services, quality of E-Banking services, bank frauds, future of E-Banking, preference of bank customers regarding banks, comparative study of banking services in various bank groups, preferences regarding use of E-channels and problems faced by E-Banking customers. The study was found that customers of all the bank groups were attracted in E-Banking services but at the same time they were facing more problems concerning E-Banking services like inadequate computer knowledge, poor internet, lack of infrastructure, installation of ATM unwanted places, use wrongly of ATM cards and difficulty to open an account.

Pallavi (2012)$^{23}$ identified the customers’ perceptions towards electronic banking services and also find out the problems faced by bank customers and strategies to enhance electronic banking services. The study disclosed that public sector, private sector and foreign banks offering electronic banking services even though customers have low awareness regarding electronic banking products. customers faced more problems like inadequate computer knowledge, poor response of bank staff, lack of internet banking facilities, forget ATM PIN and language problem.

Nishi (2012)$^{24}$ measured the satisfaction level of rural customers from electronic banking services and also analyzed the factors that influencing rural customers satisfaction from electronic banking. The research based on primary data collected through questionnaire from rural electronic banking customers. The study found that rural customers were neutrally opinion with the provision of updating, accuracy of transactions and convenience. Majority of 72 per cent of the customers feel uncomfortable in transacting with electronic banking services because of inadequate computer knowledge, availability of ATM and language problems.

However, they were not found to be more satisfied with the rules and regulation and compensation given in case of fraudulent attack by unknown person or mistake by bank and projected better services should be provided for differently able persons.

Alsamydai et al., (2012) measured the satisfaction level of customer and impact on the continuity in dealing with E-Banking services. The study build were divided into five attributes like E-Banking service quality, personal factors, perceived usefulness, customer satisfaction and continuity of dealing with E-Banking services. The findings showed that there is a significant relationship between all attributes and also the factors relating to E-Banking service quality, perceived usefulness and personal factors have an influence on customer satisfaction and continuation in dealing with E-Banking services.

Kwashie Wisdom (2012) identified the E-Banking services offered by Ghana Commercial Bank (GCB) to their customers and also measured the customers level of satisfaction with service delivery given the opening of E-Banking services. It was found that ATM services, short message service banking, telephone banking and internet banking were the E-Banking products offered by GCB and support by customers. The study also found that the negative perception of customers about the bank has significantly changed. Most of the customers now see the Ghana Commercial Bank as a serious business entity which respects and values time. Over 76 per cent of the customers agreed strongly to this assertion while break do not. Due to the fact, they do not use the electronic banking services provided by the bank.

Lochab and Dalal (2012) investigated the behavioral intention to use internet banking by customers in hotels. It search into the extent to which internet banking was accepted among hotel customers and investigated the factors that affect the adoption of this latest and advanced service of making payments through

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E-Banking system in hotel industry. The results showed that perceived ease of use, 
perceived security and privacy were main factors that influence the usage of internet 
banking among hotel customers. It observed that having internet access at hotels 
encourages the use of internet banking in hotel premises. Further, unwillingness to 
change had a significant negative impact on the implementation of internet banking. 
The customers were permitted to come at any time without any card and cash 
necessity. Customers would like to pay sometimes through internet or debit/credit 
card banking which was also types of E-Banking. Therefore, this study helps in 
understanding customer perception about E-payment through E-Banking system in 
hotel industry.

Lydia (2012)\(^{28}\) determined the present level of customer satisfaction at 
Centenary Bank and find out the relationship between E-Banking and customer 
satisfaction at Centenary Bank. The study found that customers are high level 
satisfied with banking needs and usage of E-Banking services. ATM machine are 
some times break down and customers are waiting in long queues lowers the level of 
satisfaction. This study can be concluded that the responses of customers on 
E-Banking variable was positive, most of the respondents agree and strongly agree 
to the effects of electronic banking channels employed at Centenary Bank, the 
service was speedy, easy to use, easy to fund transfer from one account to another 
account through internet banking. The inadequate number of ATM booths and the 
customer representatives for on-line services fairly respond to customers doubt on a 
timely fashion.

2.3. Core Banking

Mrutyunjaya Pradhan (2006)\(^{29}\) enumerated banks implemented phone 
banking, internet banking, mobile banking, call centre services, ATMs etc., one after 
another for better customer services. Now, it was the turn of core banking solution 
where the whole banking industry was focusing concentration for real time banking.

Nateete Branch”, A Research Report Submitted to the College of Business and Management Science in Partial 
Fulfillment of the Requirements for the Award of the Degree of Bachelor of Commerce of Makerere University, 
August.

\(^{29}\)Mrutyunjaya Pradhan (2006), “Core Banking Solution with Multi Dimensions” The Indian Banker, June, 
Vol.1, No.6, PP.14-16.

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Core banking solution offered a customer centric banking familiarity by implementing a single integrated rational data base that contains all customer profile, account details and product information operating in real time, as a result transaction occurred quickly updated. Access to customer information, account information and financial transaction posting was available 24x7 on online. The victory of core banking solutions not only depends on the technology but also dependent to a larger extend to the thoughts, commitment and involvement of the operating bank staff at all levels. Therefore, core banking today has become matter of compulsion and not as a matter of choice for the banking industry in the present market scenario. Therefore, it is necessary to identify the perception of customers about core banking.

Subbiah and Jeyakumar (2008-2009) revealed that the benefits of core banking are reduced transaction cost, paper usage, time, money and increased customer satisfaction, quick implementation of E-Banking services, management of ever-increasing transaction volume and better security. The customers were directly benefited by way of happy banking experience. Core banking was a new trend which has increased the speed of banking transactions. Rapid improvements in technology, quicker communication facility and accessibility of high computer power, internet banking and core banking have resulted in a revolution in the banking industry world wide

2.4. Automated Teller Machine (ATM)

Islam et al., (2007) measured the level of satisfaction HSBC ATM cardholders both staff and non staff with respect to various attributes like promptness of card delivery, the performance of HSBC ATM, the service quality of ATM personnel of using HSBC ATM. In this study convenience sampling technique was adopted. Based on those convenience sampling 57 non staff ATM respondents and 42 staff ATM respondents were selected. These customers were facing various problems with ATM such as machine complexity, machine breakdown, and poor

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quality of currency notes. The foremost problems identified by the ATM users. Some inconvenient features were not directly related to HSBC ATM such as safety, security, small ATMs, language problem, net problem etc. Staff and non staff ATM respondents have different levels of satisfaction with various aspects of HSBC ATM. Therefore, it is to investigate what are the problems encountered by ATM holder faced to public, private and foreign bank customers.

Singh and Komal (2009) analyzed the current ATM facilities offered by SBI, ICICI and HDFC Bank and also examined the factors affecting the preference of ATM. A comparative study of three public and private sectors namely State Bank of India, ICICI bank and HDFC bank in India. The study was concluded that majority of the respondents are highly satisfied in SBI ATM facilities, then second was ICICI Bank and third was HDFC Bank. This was due to the size of the respective bank and number of years of its establishment. Customer satisfaction i.e. in terms of good organization, quick services and performance, HDFC Bank was at first place followed by ICICI Bank and SBI respectively.

Pahwa and Saxena (2011) measured the level of customer satisfaction an associated with several aspects of ICICI bank ATM and also make policy advices to improve the service quality of ICICI bank ATM. This study based on explorative research used random sampling technique. Customers’ level of satisfaction can be measured such as promptness of the delivery of ATM card, the service quality of ATM card, safety, security, privacy, cash availability in ATM, cash withdrawal, quality of notes, overall performance of ATM and sufficient number of ATMs. It was found that the customers were highly satisfied with the factor of availability of cash in the ATMs and the quality of currency notes in the ATMs being ranked first and second. Hence, it is essential to investigate the perception of customers about ATM services in other places also.

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Sanda and Arhin (2011)\textsuperscript{34} investigated the provision of ATMs, customer service centre, reduce customers are frequently visiting branch for knowing transactions and the workloads of the employees and offering them opportunities for efficient and effective customer service deliveries in the banking halls. The study showed that the majority of the bank customers who use the ATM services perceived the ATM as a convenience, reliability, accurate information and suitable service delivery tool for their banking transactions and also they still underutilize the ATMs service facility by choosing to go to the banking halls to make cash withdrawals of amounts that could be obtained from the ATMs. Therefore, one has to investigate the satisfaction level of ATM users in Tamil Nadu.

Kumbhar (2011)\textsuperscript{35} identified key factors that influence customers’ level of satisfaction in ATM service offered by public and private sector banks. Customer perception classified into seven dimensions such as system availability, fulfillment and efficiency, security and responsiveness, easiness, convenient, cost effectiveness, problem handling and contact and overall satisfaction. The result found that cost effectiveness of ATM service were the core service quality dimension and it significantly influence on overall customer satisfaction in ATM service offered public and private sectors banks. However, factor analysis showed that easy to use, cost effectiveness and security and responsiveness influences customer level of satisfaction at thirty six per cent variance. Therefore, public and private sector banks should take necessary steps these dimensions for providing better ATM services to satisfy their customers.

Choodambigai (2011)\textsuperscript{36} identified the level of awareness and use age of ATM services and also measured the association between age and purpose of using ATM cards. It was found that customers are more enjoyed and acceptance for using both ATM services and credit card facility of SBI Coimbatore. It was revealed that cash withdrawal through ATM was very convenient and most of the customers were


using ATM services frequently. With regard to purpose, more weight age was given to withdrawal facility of ATM. It was wonderful to note that the samples had adequate and sufficient guidance to use ATM cards and they were satisfied with the security facility made at the ATM hall. Non-working of the ATM machine was the negative remark made by the ATM card holders.

Omar et al. (2011)\textsuperscript{37} examined the customer perception, awareness, satisfaction about online banking in Pakistan. The study showed that majority of the customers choose internet banking services and branch banking due to reliability, convenience, speed, safety, and security, cost effectiveness, user-friendly, and non-working computer. The study find out that security troubles, lack of faith and computer knowledge, ATM machine break down etc., affect the adoption decision of customers of internet banking services. The services which are not in Pakistan example cash and cheque deposit facility through ATMs, short message service through mobile phone, E-mail alert service through internet, fund transfer through mobile and ATMs, payment of utility bills through mobile and internet banking were found major requirements services by the usage of E-Banking customers.

Kumbhar (2011)\textsuperscript{38} measured customers’ satisfaction in ATM service offered by public and private sector banks and also identified gap between expectation and perception of ATM service quality, brand perception and perceived value in ATM service of public and private sector banks. The result found that private sector banks offering ATM services more satisfactory as compared to public sector banks. Hence, public sector banks should focus their attention on ATM facility to develop customers’ satisfaction and also revealed that customers perception about efficiency, contact service related ATM service, problem handling and compensation, cost effectiveness, security and responsiveness was low in both public and private sector banks. Therefore, public and private sector banks should aware about these aspects of ATM service to enhance customers satisfaction and product loyalty. Cost effectiveness was one of the major important service quality


attributes which negatively affecting on customers satisfaction. Hence, banks should minimize service charges related ATM service and provide cost effective ATM service to their customers.

Shobha and Sundar (2012)\textsuperscript{39} measured the satisfaction level of ATM card holders with respect to several aspects of ATM services and also identified the problem faced while using ATM cards. Purposive sampling technique was used. The satisfaction levels of ATM card holders with respect to various aspects of the service quality of ATM and their opinions on various other related issues such as the inconvenient features while using ATM. The study revealed that the customers of public and private sector banks providing services not having problem. Customers were more satisfied with the services offered by public and private sector banks. Customers have more confident in ATM services and used the card anywhere and anytime withdrawal money from ATM. Customers are use ATM for other services such as cheque and cash directly deposited, request for cheque book, fund transfer etc.

Nadar (2012)\textsuperscript{40} investigated the attitude of customers towards ATM services and identified the customer satisfaction towards ATM services. The study was based on survey method. Primary data was collected from the bank customers with use structure interview schedule. It suggested that most of the customers feel there is convenient in using ATM services and minimum and maximum cash withdrawal limit may be increased. The major purpose was to satisfy the needs and wants of the bank customers. Place of installation of ATM machine was quite convenient to bank customers such as near bus stand, hospital and railway station. The study concluded that the ATM facility has been extended to current and savings account holder of all the banks. Finally, all the respondents are fully satisfied with the operating of ATMs, bank can retain its existing customers and attain new customers.

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Bishnoi (2013)\textsuperscript{41} find out the different ATM facilities, reasons to use ATM cards and several problems while using ATM card facilities and also examined the relationship between various personal profile and ATM facilities offered by various banks. The study found that problems while using ATM services such as machine out of cash, poor quality currency notes, machine out of order, internet failure, no printing of mini statement and poor visibility of statement slip were the significant issues. The study concluded that ATM was more comfortable at anytime and anywhere usage to their customers. ATM was increased day by day and also customers increased. There is no significant difference between opinion of male and female customers and public and private sector bank ATM customers concerning many problems while using ATM facilities.

Javed Ahmed Chandio (2013)\textsuperscript{42} examined recent trend of ATM facilities vs paper based transactions in customer retail banking. The result showed that ATM was frequently used for cash withdrawal, check balance enquiry. Majority of 84 percent of the customers use ATM in their own banks, they do use ATM of other banks some times. Generally customers were highly satisfied with their own ATM facilities however the degree of satisfaction varies to some extent among the customers. Therefore, it is essential to analyze recent trend ATM services providing by public, private and foreign banks.

2.5. Mobile Banking

Laforet and Li (2005)\textsuperscript{43} analyzed the market status for internet banking and mobile banking in China. The study revealed that Chinese internet banking and mobile banking customers were predominantly male than female and more educated in contrast with electronic banking users in the west. The question of security was found to be the major important factor that motivated Chinese customers acceptance of internet banking. Important barriers to internet banking were the perception of


risks, computer knowledge, communication ability and Chinese traditional cash carry banking habit. The important barriers to mobile banking acceptance were lack of awareness and understanding the benefits offered by mobile banking.

Laukkanen (2007)\(^{44}\) described a comparative study on customer perception in online banking and mobile banking service and also measured customer perceived value and value creation between online and mobile bill payment services. The study found that the customer perceived positive value and value created negative value to fund transfer between one account to another account via online banking and mobile banking. The major noteworthy differences between online and mobile banking were related to internet free access to the service and the display of screen. The mainly essential contributor to mobile banking seems to the skill to use the facility anywhere need. E-Banking was related to the capability for quick actions and time saving in service utilization. The computer and mobile key board and the display of the device appear to the clearest inhibitors to the use of mobile bill payment facility whereas in the use of personal computer the case appears to the opposite.

Hanudin Amin (2008)\(^{45}\) pointed a beginning investigation of the factors that determine whether Malaysia bank customers were using the recent mobile banking and credit and debit card technology. The study identified five factors like perceived credibility, amount of information about mobile and credit cards, perceived expressiveness, perceived usefulness and perceived ease of use. The findings showed that perceived credibility, amount of information about mobile and credit cards, perceived usefulness and perceived ease of use contained on mobile phone and credit cards are contained on mobile phone credit cards are significant determinants predicting the intentions of Malaysian customers to adopt mobile phone and credit cards. However, perceived expressiveness was not significant determinant in predicting the intentions of Malaysian customers to adopt mobile and credit cards.

Sadi et al., (2010)\textsuperscript{46} measured the level of adoption of information and communication technology in banking sector and also analyzed the prospects of mobile banking in Oman. The result revealed that majority of the banks and the telecoms machinist have the power to provided better qualities of electronic and mobile services offer better qualities of electronic and mobile services to the residents of Oman. Presently, the banks were trying to offer one form of mobile banking or the other banking, but the weaknesses were the level of support was less and it requires concentrated efforts of the telecoms machinist and the financial institutions to quick development of mobile banking services to the customers. It was expected that innovative development of third generation network will boost mobile commerce actions in the sultanate of Oman but may require further investment in the quality of mobile phones and mobile network.

Girdhar and Bhardwaj (2011)\textsuperscript{47} identified the awareness level of mobile banking services among working profession and also whether or not they are using mobile banking. The study concluded that awareness level of mobile banking services among working professionals was very less. The reasons for its usage by the recent users and of those who were presently non-users strongly consider on two major factors such as secured and easy accessibility and uninterrupted mobility to exist mobile banking services. The banks should educate their customers by communicating benefit of mobile banking services by consider upon the above stated two major factors. The working professionals were found to be occupied in their own offices whereby access to banking transactions through mobile banking and internet banking.

Malarvizhi and Rajeswari (2012)\textsuperscript{48} examined the level of awareness and usage of mobile banking services and estimated the criteria for selecting the mobile banking services in Coimbatore city. The study based on primary data was collected from 100 sample respondents in Coimbatore city. Purposive sampling technique was


used. The study found that mobile banking adopters all are educated. They belong to business group and middle income group. The study concluded that customers feel about mobile banking are more useful and convenient, their expectations will also increased. Hence, the banks must be ready to meet their expectations and provide them a hassle-free mobile banking experience.

Alsoufi1 and Ali (2014)\(^{49}\) investigated the factors influencing customer’s perception on mobile banking adoption. Further, the extended technology adoption model was evaluated empirically to measure its impact on mobile banking adoption in Bahrain. The study found that the intention to adopt mobile banking was major affected by specific factors such as perceived usefulness and ease of use. On the other hand, some factors namely perceived cost and perceived risk did not show any affect on the customers intention to access mobile banking services. The study was benefited for managers to consider the factors that can enforce the mobile banking services acceptance and increase the take-up of their mobile banking services.

2.6. Internet Banking

Sathye (1999)\(^{50}\) revealed the quantifying factors prevented adoption of internet banking in Australia. The study found that security concerns on lack of knowledge and awareness stand out as the reasons for non-adoption of innovative internet banking by Australian customers. Bank management could build awareness by emphasizing the benefits of internet banking via mobile banking, phone banking, brick and mortar banking and educate customers about security concerns on the lines.

Rotchanakitumnuai and Speece (2004)\(^{51}\) examined four benefits and three barriers that influence corporate customer adoption. The four benefit factors like information quality, information accessibility, information sharing, and transaction benefits. The three major barriers are related to trust, legal support, and organization.


Information quality and transaction benefit factors were most significant than others in discriminating internet banking users from non-users. In addition, information sharing and distrust of the web were two drawbacks of Thai internet banking adoption. As Thai banks decide to use internet technology as an innovative self delivery services, they have to adopt from corporate customers. This does not appear to be simply a matter of getting corporate customers to recognize benefits, but banks may want to lower barriers to online banking acceptance to offer real benefits to corporate customers.

Lassar et al., (2005)\(^\text{52}\) explored the relationships between customers’ innovativeness, self-efficacy on the E-Banking, E-Banking attitudes and internet banking adoption, while controlling for demographic characteristics. Findings may be differ according to customers’ usage of internet banking, phone banking, electronic fund transfer, direct bill payment service. Their results may generalize to phone banking and electronic fund transfer as these products, like internet banking, need an active customer role in using the E-Banking products and services. With direct bill payment services, customers want only set up the procedure firstly and then monitor it on a semi-regular basis.

Hashim and Chaker (2008)\(^\text{53}\) analyzed how customers perceived using internet banking in Qatar. This study found that the major internet banking concern the safety and security for their customers in Qatar, which forms a real obstacle to use the service. The study also found that which type of customers frequently use the online banking services, regularly do not conduct more transactions in internet banking, but find the service very useful for checking their account transactions. This means that internet banking services were not doing the purpose it was originally made for, which was to provide customer convenience and reduce customer frequently visits to the bank branch. This study also found that lack of knowledge and awareness could be one of the factors for having a low rate of internet banking usage.


Calisir and Gumussoy (2008)\textsuperscript{54} examined how young consumers perceived internet banking in relation to other six banking channel such as brick and mortar, automated teller machine, electronic fund transfer at point of sale and bank branches. The study found that internet banking, ATM and tele banking alternate each other and also internet banking was considered to be ease of use and easy accessibility and that the users of internet banking lack of confidence in the security of the bank websites of internet banking. Therefore, it is essential to know how young customers perceive mobile banking in relation to six other banking channels.

Singhal and Padhmanabhan (2008)\textsuperscript{55} analyzed the main factors responsible for internet banking based on customers’ perception on different internet applications and also revealed that there was any relation with the personal profile and respondents perceptions about internet banking. Factor analysis showed that utility request, security, utility transactions, ticket booking and fund transfer are predominant factors in internet banking services. Out of 61 customers more than 50 per cent of customers agreed internet banking services more convenient and flexible and it also has several transactions related benefits. Hence, it is necessary to identify the level of satisfaction on E-Banking services.

Rojid and Seetanah (2008)\textsuperscript{56} identified the factors that affect the acceptance of E-Banking and also examined there were any difference between the internet users and non-internet users relating to the different factors. The study found that maximum used facilities are fund transfer from one bank account to same bank account, fund transfer from one bank account to another bank account, fund transfer to credit card account and mobile phone among others. The study concluded that the most important factors were ease of use and other important elements, convenience of use, security concerns and internet accessibility. Hence, it is to identify whether the above factors may also apply to the customer perception on E-Banking services.


Manzano et al., (2009)\textsuperscript{57} find out how customer innovativeness can be used as a variable to positively influence internet banking accepted both directly minimize customers perceived risk. The findings showed that allows practitioners to focus their efforts on attacking the risk dimensions attending to their level of importance such as security, privacy risks, performance and social risks instead of wasting resources on the irrelevant one. The study concluded that internet banking customers have lack of faith in the electronic payment on the internet may delay the consolidation of internet banking acceptance.

Mahboob Ali (2010)\textsuperscript{58} observed various types of E-services and use of software by the banks. Banks are offering E-services like core banking, cluster banking, phone banking, short message service, internet banking, personal computer, ATM, point of sale, offline branch computerization, SWIFT and corporate banking terminal. From the point of view of internet banking, still foreign banks are providing most internet banking facilities than private commercial banks followed by nationalized commercial banks and last being internet banking facilities offered by specialized banks. Hence, it is identified that customers perception level of commercial banks services particularly in E-Banking services.

Yoon (2010)\textsuperscript{59} measured customer satisfaction on internet banking and revealed that the relationship between the antecedents and customer satisfaction on internet banking services. The researcher identified six factors namely ease of use, security, customer support service, speed, design and information content. Factors are proposed and the effects of experience on the relationships between these and customer satisfaction are examined using a structural multi group model. Factor analysis showed that design, speed, security, information content and customer support service have predominant factors on customer satisfaction in the high-experience group or the low experience group, but ease of use does not have a predominant factor on customer satisfaction in either of the groups. Further, the


analysis relating to the influence of the level of customer experience revealed that the information content on customer satisfaction, security, effects of design and speed were significantly larger experience group, whereas the effects of satisfaction support service on customer satisfaction on the effects of design, security, speed and information content on customer satisfaction were significantly higher in the high-experience group, whereas the effects of satisfaction support service on customer satisfaction was significantly in the low experience group users.

Iran (2010)\textsuperscript{60} analyzed the key factors underlying customer satisfaction with electronic banking services. This study designed a model of seven factors on the following dimensions such as convenience, bank image, accessibility, website design, accuracy, security, usefulness and accuracy. The study found that accuracy, reliability, image, impression of the bank and management and web site design are the important factors for satisfaction. The factors of privacy and security had the smallest amount correlation with satisfaction. This might also be due to the self-assurance that customers have in electronic banking services, particularly in nationalized banks. Lastly, there is no difference between male and female regarding normal satisfaction.

Neha and Datta (2010)\textsuperscript{61} studied on how the customers perceived the value of internet banking services over the traditional way of banking services. The researcher identified the perceived service quality attributes of self-service technology and the impact of these perceived service quality attributes towards customer satisfaction level in internet banking. The study found that some factors like perceived value, perceived service quality, customer satisfaction and their loyalty have predominant impact on a customer adoption of internet banking services. Perceived value has an impact on customer loyalty, customer satisfaction and service quality. Service quality also had a similar impact on the perceived value, customer satisfaction and customer loyalty.

Redlinghuis and Rensleigh (2010)\textsuperscript{62} examined what were the internet banking customers’ perception on information protection and when using internet banking products and services? The study found that customers only make use of basic internet banking products and services like checking of account balance, utility bill payments and fund transfers. In addition, customers make use of internet banking products and services only when the need arises. The most usage of internet banking products and services are post-graduate students and customers mostly within the older age brackets and an increasing number of younger users expecting this service via anywhere banking, any time banking and mobile banking.

Kumbhar (2011)\textsuperscript{63} assessed the customer’s perception in internet banking services provided by public and private sector banks and also measured the relationship between personal profile and customers’ satisfaction in internet banking service offered by the public sector and private sector banks. The results showed that the personal profile of the customers’ were one of the most significant factors which influence the use of internet banking services and also revealed that the overall satisfaction of government employees, private employees, businessmen and professionals were larger in internet banking services. There was significant difference in the customers’ perception in internet banking services offered by the public and private sector banks. Private sector banks were offering quick and quality of internet banking service than public sector banks. Therefore, it is necessary to enumerate the expectations of their customers about internet banking services.

Khan and Emmambokus (2011)\textsuperscript{64} analyzed the factors that contribute to the acceptance of internet banking in Mauritius and also examined the factors that influence internet banking in Mauritius. The study concluded that the six important demographic variables such as age, income, risk, usefulness of internet banking, frequency of checking account balance and internet location were significant and


demographics variables like gender, place of living and marital status have been insignificant in this case unlike in developed countries. Mauritius has a well-developed banking sector but it has lagged behind in terms of internet banking. Although banks have security and privacy measures such as internet and data access management, user verification, transaction confirmation, virus protection, privacy policies and detection of possible intrusions which include penetration testing, intrusion detection and still bank customers are still be careful of possible risks from internet banking.

Jalal et al., (2011)\(^{65}\) explored the customers’ intention to use internet banking in Bahrain. The study found that all the elements for the three identified factors were predominant with respect to the users acceptance of E-Banking services. Credibility factors were the major sources of dissatisfaction including security and privacy, which have extraordinarily impacted users satisfaction. In the meantime, perceived ease of use and perceived usefulness were sources of satisfaction. The results also disclosed that security and privacy factors play a significant part in determining the users adoption of E-Banking services with respect to various segmentation of age group, income group and educational qualification group.

Ankit (2011)\(^{66}\) identified the major factors influence internet banking customers’ satisfaction with the overall service quality of their banks. The study analyzed that banking requirements, followed by core banking services, problem decreased, time and cost saved, convenience, security and risk and privacy regarding were the overall major factors to satisfy strongly on internet banking customers. On the other hand, characteristic accessibility and customers’ continuation were found to satisfy moderately satisfied with internet banking customers.


Ramanigopal et al., (2011)\textsuperscript{67} examined the awareness level of customers towards the internet banking facilities. Measured the level of satisfaction about internet banking services and also identified the factors that influence the customer in using internet banking services. The study revealed that lack of security and computer knowledge was the important problem of internet banking services and also fear of internet threats and scams and lack of computer skill and inadequate system operations. The study suggested that awareness level about internet banking was very lower among customers. Therefore, banks have to conduct customer meet frequently to educate the customers on internet banking. The bank can also distribute booklets contains information about the recent schemes about E-Banking services and it can be circulated directly to the customers.

Suriyamurthi et al., (2012)\textsuperscript{68} focused on customers’ perceptions on internet banking services, the factors that drive customers, how customers have adopted internet banking services and the ways to develop the usage facilities and identified factors influencing adoption level of internet banking services by the bank customers. The study found that age, gender, education and income play significant role in usage of internet banking services. The research supports the conceptual framework stating that skills can be upgraded, there will be greater to use internet banking by customers. Dimension factors like trust, gender, age, education, culture, religion, security and price can have lower effect on customer mindset towards internet banking.

Ritanjali (2012)\textsuperscript{69} examined factors responsible for customers’ attitudes and perceptions towards rising internet banking sector and also analyzed the significant of the key variables relating to customers personal profile and social inputs. The researcher identified predominant factors such as customer relationship management, word of mouth and the attitudes of the customers play significant role


in increased the productivity with respect to internet banking and the quality of the service also influences the customers to decide internet banking as a better alternative.

Kuchara (2012)\textsuperscript{70} in her article title a study on customers’ perception towards internet banking at Ahmedabad city analyzed results that convenience, security, easy to maintain banking facility, curiosity, better rate and low service charges are major factors. Out of total respondents 50 per cent agreed to internet banking was more convenient and flexible way of banking. It has different transactions related advantages to customers. Banks offering internet banking was day by day increasing becoming a need to have than a nice to have service.

2.7. Phone Banking

Agboola (2006)\textsuperscript{71} analyzed payment settlement system and phone banking services in Nigeria. The study found that there has been a very modest move away from cash. Some payments were currently automated and complete volumes of cash transactions had been declined connectivity via the use of local area network and wide area network has facilitated electronic transfer funds. The use of smart cards, point of sales and computerized credit rating were not very familiar as less than half of the studied banks had fully accepted them. The least fully accepted banking technologies were ATM, electronic fund transfer, internet banking and phone banking. Low rate of acceptance of these technologies might be due to the low level of satisfaction and economic development etc.

2.8. Others

Ahmad and Haron (2000)\textsuperscript{72} examined the perceptions of customers’ responsible in financial affairs of public listed companies in Malaysia. Among the issues covered in this study are usage of conventional and Islamic banking services, customers’ understanding of the Islamic banking system and their personal opinion.


on several aspects of Islamic banking products and services. This study revealed that a bank offering banking products and have not services enough to educate customers and market their products. Majority of the customers indicated that limited knowledge about Islamic banking products and services. Similarly, despite the fact that the Bank Islam Malaysia has gained footing since 1984, and that the interest-free banking scheme was launched in 1993, most customers started relationships with this system only four years ago. This lack of a marketing effort among the providers could be a contributory factor toward the smaller market share of Islamic deposits and loans against the total loans and deposits of the Malaysian banking system. This study also showed that the most significant factor perceived by corporate customers in selecting their banks is the cost of the services and products.

Wan (2005)\(^{73}\) investigated the factors influenced Hong Kong bank customers’ acceptance of four important banking channels namely branch banking, ATM, internet banking and phone banking and also focused on the influences of personal profile and psychological attitude about the positive attributes possessed by the channels. The study found that majority of the customers adopted ATM channel followed by branch banking and internet banking. Phone banking was the least frequently adopted channel. Psychological beliefs about the extent to which a channel possessed certain positive attributes were more predictive of adoptions of ATM and internet banking than adoptions of branch banking and telephone banking. Personal profiles were strongly associated with acceptance of all banking channels except ATM.

Balakrishnan (2006)\(^{74}\) studied the performance of Indian payment system during the last three decades in India, all electronic mode of payment have shown better growth than the manual cheque based payments. Despite their popularity, card based payments contribute less than 0.5 of the total payments by value whereas manual cheque based clearing continues to grow. The growth of credit and debit card based payments and settlement system for retail customers and retailers and the real time gross settlement for sale whole transactions were two other significant


aspects of payment system evolution. Today retail payments like fund transfer from one account to another account, electronic clearance services, ticket booking and national electronic fund transfer have low service charges compared to manual conventional cheque charge. Hence, the above payments should contain internet banking.

Srivatsa and Srinivasan (2007)\(^7\) examined the psychographic attributes which played a role in the banking channel selection behavior of a customer. This study based on empirical and explorative research. Stratified random sampling technique was adopted. Their findings revealed that across the specified regions in the State of Karnataka, convenience, control, privacy and security plays significant role in the selection of banking channels. The study was also found in some regions that still now customers were not ready to use branch banking because their mindset fixed only on traditional banking system only. Tele banking was not familiar in four regions since it was not perceived as a safe and convenient channel. Therefore, it was decided to find out whether tele banking was popular in the ten corporations of Tamil Nadu.

Baskar and Ramesh (2010)\(^6\) examined the customer’s perception on the service quality factors and also evaluated the linkage between the customer’s perception on service quality factors and the customer’s satisfaction. The study was concluded that the internet service quality factors are having a significant positive impact on customer satisfaction. The level of perception on the service quality factors differ from one customer segment to another customer segment. Since the usage of internet banking among the customers was growing. The bank managers are enhance to enrich the service quality consistently. Hence, it is essential to analyze the expectation level of customers in online banking services.

Mannan (2010)\(^7\) assessed the implementation of information technology in Indian banks and understanding the customers’ perception. The study found that the


most of the customers was less educated, the utility of banking facilities was not properly realized. The study also found that most of the respondents usage are male than female. Housewife, small enterpriser and persons from unorganized sector still feel shy and keep themselves away from the banking services. Eventhough, a majority of Indian banks and foreign banks had launched the advanced E-Banking facilities. It was observed that a large number of bank users do not use advanced E-Banking services properly.

Uppal (2010)\textsuperscript{78} identified the extent of complaints in three types of bank groups like public sector banks, Indian private sector banks and foreign banks. The numbers of complaints gave from public sector banks and the maximum complaints are related to deposit, credit cards and housing loans. The study concluded that the maximum complaints were in the public sector banks and were continuously increasing, and as such, they adversely affected customers’ satisfaction and performance. The complaints and all the activities performed by banks were in deposit, credit cards and housing loans. It was necessary to mitigate these complaints to make the customer satisfied. Each and every bank should establish a customer care centre to solve the problems of the customers. Customers are more satisfied in private and foreign banks. Moreover, Indian public sector banks were still not taking the initiative in solving the complaints of their customers.

Aremu et al., (2011)\textsuperscript{79} analyzed the customers’ perception on information technology in the Nigerian banking industry. The findings showed that customers were more satisfied with great development on statement generation and accounts reconciliation. The study also revealed that manual recording system through the use of ledger and cash books have been replaced by computerized information system. The study concluded that information and communication technology has brought a fundamental positive change in the service delivery and qualitative banking practices in Nigeria.


Singh and Arora (2011) enumerated the extent use of services especially in the information and the communication technology enabled services and also analyzed the constituent factors affecting customer satisfaction with the quality of services. The study showed that the small number of customers’ were using information and communication technology enabled services other than ATM. Security, lack of facility, insufficient awareness and so on were found to be the reasons for not using information and communication technology enabled services. The customers of nationalized banks were not satisfied with the bank staff behavior and infrastructure facilities, while customers’ of private and foreign banks were not satisfied with maintain minimum balance, high service charges, accessibility and communication.

Ahmed (2011) measured the factors affecting the level of customers’ satisfaction of State Bank of India and ascertained whether profession groups of customers vary in their level of satisfaction recived from the banking services. The factor wise average scores in respect of management factors, technology factor and interactive factors regarding revealed the customers turned out to be a dissatisfied lot. Therefore, an immediate step was warranted to develop the quality standards. The customer's orientation towards recent services of banks observed that the most of the services provided by state bank of India have remained unutilized due to the problems natural to it. The banks in the area under study have to develop a lot for innovative services particularly for the satisfaction of ATM users. There was a need to adopt certain specific marketing strategies in order to survive in the present globalized environment and in the present world of competition.

Khare (2011) identified the customers’ perceptions about multinational banks. The study found that Indian customers were positive towards the multinational banks and consider them efficient and competent. The study was

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concluded that the professional group and the income group of the customers considered as significant factors of influencing their attitude towards multinational banks. A comparison between customers of foreign banks and Indian banks can be done in future to understand the significant service quality issues given preference by customers. This would also provide interesting insights regarding customers’ service quality perception for Indian and foreign banks. The service quality can be extended to understand the implication of different services provided by the banks.

Lohani and Shukla (2011) examined the overall percentage of customers’ perception of the services offered by the bank and a comparative analysis of services offered by ICICI and Bank of Baroda banks. The study found that the perceived quality of services offered by ICICI was better than Bank of Baroda in Lucknow city region. It was evident that public sector banks have a strong presence in the market, but in recent times they were facing stiff competition from private sector banks in the range and quality of services provided.

Gudadhe (2013) studied customers’ perception towards products and services state bank of India, measured State Bank of India and bank group wise perception and satisfaction level of customers and also find out the availability and use of products and services of State Bank of India. The study found that maximum of 99.27 per cent of customers expressed their satisfaction and a minimum of 0.73 per cent of customers are dissatisfied towards the service provided by State Bank of India, which was very less proportion of dissatisfaction. State Bank of India was the first banks in public sector to start the use of advanced and innovative technology for computerization and core banking concept. The bank appeared to be on the fast track for information technology based products and services. The impact of the information technology on customer satisfaction in urban, semi-urban and rural branches of Yavatmal District has been found.

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Sumathi and Thyagarajan (2013)\textsuperscript{85} analyzed the expectations and the level of satisfaction of the customers toward the services rendered by public and private sector banks. The study has been suggested strive, attract and retain customer that bank has to introduce innovative products, enhancing the customer services and marketing through different channels targeted at specific customer, proper technical training to staff must be provided to handle crisis situation and also bank should create awareness in rural areas concerning their new schemes and should train and educate if necessary. It was concluded that the banker to educate their customer by providing various services based on technological development to the satisfaction of their customer.

The literature reviews relating to the result of E-Banking concept are deeply analyzed from several perspectives. It is obvious that all the studies have attempted to analyzed customers’ perception on E-Banking services with many different constructs. The analysis of the review of literature unleashed an abundance of innovative thoughts aimed at identifying the perception on E-Banking services. The analysis also ascertained that no serious attempts have been made by the researchers in segregating the fundamental building blocks of customer based on E-Banking services. This was identified as research gap after a thorough review of literature. Hence, it is perfectly justified to study E-Banking in the context of core banking, awareness level of E-Banking products, factors influencing E-Banking services and satisfaction level of ATM, mobile banking, internet banking and phone banking services. In this direction, the research brings to limelight the customers’ perception on E-Banking services, a study with special reference to commercial banks in Tamil Nadu.