

## *Chapter II*

---

## **CHAPTER II**

### **REVIEW OF LITERATURE**

This section discusses about various studies carried out on digital banking. Literature review helps in getting insight on the theories related to adoption and usage of digital banking. This further helps in defining the problem statement and the objectives for this study. It also helps in identifying the variables and designing the research. For the purpose of research, 107 reviews were acknowledged to define the indicators. Each review in this study supports instrument designing in framing the constructs and in framing indicators for each construct. Based on the existing study theoretical framework was drafted and the relevant hypotheses were framed.

This chapter has been divided into five broad sections based on the research objectives.

#### **2.1 Reviews pertaining to identify the demographic and other factors influencing the acceptance and adoption of digital banking**

2.1.1 International reviews to identify the demographic and other factors influencing the acceptance and adoption of digital banking on banks operating outside India.

2.1.2 National reviews to identify the demographic and other factors influencing the acceptance and adoption of digital banking on Indian banking sector.

#### **2.2. Reviews pertaining to identify the opinion of banking customers regarding the purpose of usage of digital banking services**

2.2.1 International reviews to identify the opinion of banking customers regarding the purpose of usage of digital banking services on banks operating outside India

2.2.2 National reviews to identify the opinion of banking customers regarding the purpose of usage of digital banking services Indian banking sector.

### **2.3. Reviews pertaining to identify the issues and challenges faced by customers while adopting digital banking services**

2.3.1 International reviews to identify the issues and challenges faced by customers while adopting digital banking services on banks operating outside India.

2.3.2 National reviews to identify the issues and challenges faced by customers while adopting digital banking services on Indian banking sector.

### **2.4. Reviews pertaining to quantify the various security measures adopted by customers while using digital banking services**

2.4.1 International reviews to quantify the various security measures adopted by customers while using digital banking services on banks operating outside India.

2.4.2 National reviews to quantify the various security measures adopted by customers while using digital banking services on Indian banking sector.

### **2.5. Reviews pertaining to develop service quality dimension model that analyses the adoption and acceptance level of Digital banking services**

2.5.1 International reviews to develop service quality dimension model that analyses the adoption and acceptance level of Digital banking services on banks operating outside India

2.5.2 National reviews to develop service quality dimension model that analyses the adoption and acceptance level of Digital banking services on Indian banking sector.

### **2.1 Reviews pertaining to identify the demographic and other factors influencing the acceptance and adoption of digital banking**

#### **2.1.1 International reviews to identify the demographic and other factors influencing the acceptance and adoption of digital banking on banks operating outside India**

**Azouzi., D (1970)**<sup>1</sup> aims to understand the customers' behaviour with respect to adoption and acceptance level of digital banking services. For this, researcher carried out the study in Tunisia. The results showed that despite the presidential encouragement and of being fully aware of the digital banking benefits, numerous respondents were still using

the traditional banking. Respondents felt fear of loss because of errors in transactions or hackers stealing away money which played an important role to distance Tunisian customers from online banking.

**Batiz-Lazo, B., & Wood., D (2002)**<sup>2</sup> while studying studied the customers' adoption of Information Technology in Banking. They stated that in the UK and England in particular, the technology-based services are used as the benchmark because they have large and highly competitive wholesale banking markets, and have headed over other developed countries to bring out remarkable changes in the functioning of financial markets digitally. They also opined that the UK participants in bank markets also seem to have adopted key technology innovations before their counterparts in North America.

**Khan Beethika., S (2004)**<sup>3</sup> revealed that significant diffusion of the Digital banking services has significantly altered the ways consumers organise every-day businesses. An important trend in the rapid increase of Digital usage among US householders is the use of the Digital for accessing financial accounts and paying bills. He estimated a logit model for online banking use with householder level data from the US for 1998 and 2001. In order to correct the possible endogenous of distance to one's bank, he used instrumental variables in a logic framework by following the control functions approach suggested.

**Sullivan Richard & Wang Zhu (2005)**<sup>4</sup> studied endogenous diffusion and impact of a cost-saving technological innovation i.e., Digital Banking. With the initial introduction of this innovation, large banks have an advantage to adopt it first and enjoy further growth off size. Applying the theory to a panel study of Digital Banking diffusion across 50 US States, he examined the technological, economic and institutional factors governing the process.

**Asma Mobarek (2007)**<sup>5</sup> analyzed factors influencing customer satisfaction in Botswana. The study showed that customers prefer e-banking to manual banking due to its benefits such as time-saving, efficiency and convenience. Moreover, in spite of differences in age group and occupation, majority of the respondents uphold uniformity and recognize digital banking to be of importance. The interaction with bankers who did not support e-banking said that the system is very technical, confusing and risky and lack of rapport with customers. Because of reduced interaction with customers, they can lose customers as

they don't rely on bankers. Bankers who supported e-banking were of the view that it helps reduce cost to great extent and gave convenience to customers. E-banking would help traditional banks to withstand competition.

**Dimitriadis & Kyrezis (2010)**<sup>6</sup> in their study conceptualised and measured trusting intention as an important influencer of the bank customer's usage intention of the technology based services channels. The study confirmed the significant effect of trusting intentions on use intention for both phone banking and Digital banking technology.

**Qiang Xu et (2010)**<sup>7</sup> "Identifying diverse usage behaviours of smart phone apps" The study comparatively investigated the diverse usage patterns of smart phone apps via network provider. It founded that the consumers are more likely to use local apps such as navigation, newspapers, etc., than the other type of applications. The study concluded that some applications have a high likelihood of co-occurrence on smart phones; that is, when a user uses one app, he/she is also likely to use another one and users also use several alternatives for the same type of application.

**Katarzyna Wac (2011)**<sup>8</sup> "Studying the experience of mobile banking applications used in different contexts of daily life" where the study examined to derive and improve understanding mobile banking users' experience quality in various situation of daily life. 30 android users were the respondent surveyed and analysed. The study found that the primary activity, previous experience, situation, social context and lifestyle of the users were an impact on users' experience towards mobile banking applications.

**Raza S. A., & Hanif. N. (2011)**<sup>9</sup> examined the factors that influence adoption of digital banking in Pakistan. For this they developed questionnaire with statements to rate on a scale of 1 to 5. The data is collected from random sample and the sample size of internal respondent is 210 (bank staff) and 151 for external customers. The results showed that variables convenience, perceived usefulness, information online banking, government support, perceived risk, security and privacy all had positive influence on intention to use. Government support showed more positive influence on intention on internal customers rather than external. Perceived usefulness, risk, security, privacy and information on online banking has more influence on external customers than internal.

**Ahmad, A. E. M. K., & Al-Zu'bi, H. A. (2011)**<sup>10</sup> investigated the adoption of digital banking services and examined the effect of digital banking on the outcomes of customer satisfaction viz, loyalty and positive word of mouth in the city of Jordan. The researcher collected data from 179 banking customers. The results revealed that factors; accessibility, privacy, convenience, security, content, speed, design, fees and charges had a positive impact on satisfaction and loyalty and positive word of mouth.

**Youngmibeek (2013)**<sup>11</sup> “Analysis of user’s attitude toward apps, intention to use and continual consuming intention focused on mobile banking commerce” the study revealed the users’ determinants and relation between attitude and app purchase. 191 were surveyed. The test revealed that entertainment applications were vastly welcome and encouraged by the users. The social networking sites like twitter, whatsapp, hike, instagram and Facebook were trending apps changing the users’ usage intention. The empirical test concluded that user’s satisfaction played a vast consumption induce in the repurchase intention. Users had also considered the monetary value in connecting with applications.

**Seok Kang (2014)**<sup>12</sup> “Factors influencing intention of mobile banking application use”. The research analysed the digital application performance, its social connection enhancement and easiness to predict the reason for the use of mobile banking applications. The aim of the study was to position motivation as antecedents of factors in identifying intention to use mobile banking applications. Data was collected from Top five social networking sites (SNSs). 755 respondents were surveyed and analysed by SPSS. The study concluded that social utility and communications outweighed entertainment, and is an important factor for users to use mobile banking apps. The study suggested that feelings of intimacy and technological knowledge have been catalysts for adoption and continuance to use mobile banking application.

**Saif Ahmed (2015)**<sup>13</sup> “A study of mobile banking application usage in Bangladesh” the aim of the study was to deal with the possible optimum opportunities for an app developer to know the usage of his application. The study surveyed 1000 respondents online and offline. The study found that the people were interested in productive, lifestyle, gaming and social applications vastly. The study pointed out that 58per cent of the respondents use 1-5apps regularly. The study concluded that respondents were already

familiar with the previous ratings and reviews of mobile banking applications. Study suggested that the developers had to focus primarily on designing applications that kept people engrossed with its working, in order to make users to use.

**Punjakunaporn T. (2015)**<sup>14</sup> “Factors influencing official mobile banking application purchasing intention in Bangkok” The aim of the study was to know the factors affecting online mobile banking application purchasing intention. Correlation and Descriptive research technique was applied and analysed on 400 surveyed samples. Perceived usefulness is a moderate positive relation towards official purchase intention of mobile banking application.

**Sekhon, et al. (2017)**<sup>15</sup> examined the influence of ‘traditional bank attributes’ and ‘attributes of E banking website’ on ‘trust in e banking’ and influence of this on willingness to adopt e banking. They also used ‘traditional service quality’ factors as mediator between traditional bank attributes and trust on e banking. Data was collected from 202 respondents and it was analyzed using regression analysis. The results showed that traditional service quality is important in influencing trust on e banking. Customers who trust traditional bank are more likely to trust its e banking services. The probable reason given by authors suggest that if a new customer wish to shift to e banking, they often rely on bank staff to give details of features of e-banking, help s in setting e-banking password, solve problems with the e-banking website, and provide other help and support services for e-banking transactions. The size and reputation of the bank influence trust on e banking but only when they are happy with traditional service quality. In relation to Website features that give customers confidence are important in influencing trust on e- banking.

### **2.1.2 National reviews to identify the demographic factors influencing the acceptance and adoption of digital banking on Indian banking sector**

**Prakash & Malik (2008)**<sup>16</sup> studied the factors influencing the usage of Digital banking in India. The study identified that Digital accessibility, awareness, proper guidance, attitude, security, trust, problem solving attitude of bank employees have significant impact on the adoption of Digital banking services in India.

**Singhal & Padhmanabhan (2008)**<sup>17</sup> explored the major factors that encourage the bank customers in India to use Digital banking based on their perceptions on various

Digital related applications. They have found that utility request, security, fund transfer, utility transaction and ticket booking are the major factors and more than 50% of the respondents agreed upon the fact that Digital banking was convenient, flexible and yielding transaction-related benefits.

**Sahar Ghazizadeh (2012)<sup>18</sup>** “Acceptance theory on mobile banking services and applications” The purpose of the study was to investigate if the conventional acceptance theories do enough to understand users’ intention and evaluating their behaviour or not. The aim was to find the factors that impact individual’s decision on accepting and adopting mobile banking application services. Study concluded that the lifestyle of people plays a vital role in accepting mobile banking application services.

**Rakesh Kumar (2012)<sup>19</sup>** “Consumers’ reaction towards smart phone: A study of students of university of Lucknow, India”. The study was examined to know the motives and reasons of using smart phone by analysis of the key factors, and how it affected the purchase behaviour of users towards smart phone. 70 students of Lucknow University were surveyed and evaluated. The study found that the feature of the products, prestige issues; usage and social influence were vital in shaping the user behaviour. The research concluded that social groups, family, social media, friends and colleges had played a key role in the reasoning behind purchasing smart phone.

**Saibaba & Murthy (2013)<sup>20</sup>** proposed a model called as Digital Banking Acceptance in India, by an extension of UTAUT model. Based on the responses of 325 bank customers in Hyderabad, the study found that the customer’s attitude toward the adoption of Digital banking services had a stronger influence on their intention to use this technology. Another important finding of this study was the influence of awareness of Digital banking services and its benefits on its adoption.

**Mobile Banking Behaviour Report (2014)<sup>21</sup>** “Combining mobile banking device to build a powerful mobile banking strategy” The objective of the study was to know what the consumers actually click on, download, explore, peruse and avoid on their Mobile banking devices. 470 Respondents were surveyed and analysed. The study found 85 percent of people had insisted that mobile banking devices were the central part of their



daily life. The study concluded that mobile banking devices are connecting hubs for critical facts of day-to-day life. The mobile banking device travels along with their owners for useful and convenient purposes.

**Kartikey Koti (2016)**<sup>22</sup> examined customer awareness and Adoptability towards Digital Banking A study of Indian banking Industry and revealed that Awareness of digital banking among banking customers was less. Further the study observed that for male users were lies in number in using online service. The study revealed that 18 to 24 % of customers disagree to digital banking services for many reasons such as security, privacy, trustworthy, resistance to change offered by less baking high cost, believe in paper many, illiteracy, poor experience etc.

**Abhishek S Rao KP, Suryamani & Rituraj (2017)**<sup>23</sup> examined the Banking Users“ Adoption of E-Banking in Bihar. The purpose of the study was to explore the demand and adoption of e-banking services in Bihar. A sample of 324 e-banking customers was surveyed for the study. ANOVA and Reliability analysis has been used to validate the collected data. Results of the study indicated that privacy and security are the major point of dissatisfaction of customers which have significantly impacted users“, for the time being customers are satisfied with the network availability and access to account. The results confirmed that both the public and private sector banks offer digital banking services beyond the expectation of customers.

**Apptentive Report (2018)**<sup>24</sup>“The Guide to customer retention for mobile banking apps” The report entitled with the quality content and customer experience makes the app to stay in the home screen of the users. It showed over 1.5 million mobile banking apps available. The report emphasized that “what customers want will improve the app retention”. The study suggests that by encouraging user’s feedback and validating them, it results in the effects on retention and draws more attention towards the app. The report concluded that happy customers had told their friends and family members about an app and thus had a positive effect on a greater number of fresh users.

**Rupesh Singh et al. (2019)**<sup>25</sup> analysed the impact of online banking shown tremendous rise in 2<sup>nd</sup> position public sector Bank of Baroda, the return on assets as well as return on equity both are raised. Subsequently, Industrial bank of India have great rise

in figures from 2018 to 2019. Results revealed that, Punjab national bank shown tremendous increase thereby recording negative figures from previous years. Additionally, Central Bank of India also recorded positive improvement by adopting digital banking services. The Canara Bank showed positive increase in the year 2019. The Bank of India and Indian bank have great rise in figures owing to the impact of digital banking services.

## **2.2. Reviews pertaining to identify the opinion of banking customers regarding the purpose of usage of digital banking services**

### **2.2.1 International reviews to identify the opinion of banking customers regarding the purpose of usage of digital banking services on banks operating outside India**

**Venkatesh J. & Balachandran V. (2008)**<sup>26</sup> described of Planning Digital Marketing strategy. Organizations must first decide which products or services they plan to sell on their sites. The paper tried to develop a plan for Digital marketing strategy where today and tomorrow is going to be with more Digital whimsical atmosphere. The study focused on Quality Digital marketing because it can result in reducing advertising costs, attracting qualified traffic to website, increasing global brand exposure, growth in customer base, increasing sales, improved product branding, more customers for the business and increased branding of company and products. The organizations should plan who is going to be responsible, how much resources they are going to put, who they are targeting, how they are going to handle enquiries and fulfil order. The study has also given marketing applications on the digital.

**Kim, D. J., Ferrin, Donald L., & Rao, H.R. (2008)**<sup>27</sup> questioned whether trust and risk are important in buying decisions on digital. They developed a framework and found that trust and perceived risks have major impact on online buying decisions. Three factors privacy, information quality and security positively affected trust and negatively affected Risk. They also found that when customers have greater intentions for online purchase then they are more likely to purchase.

**Akram & Sultan (2014)**<sup>28</sup> identified the attributes of e-banking services that affect the customer satisfaction. A focus group comprising of experts from the banking industry and academia, investigations with bank customers were used to reveal the factors.

Using exploratory factor analysis, “usability, efficiency, security, and web site image” were extracted. The factors which had an impact on customer satisfaction were usability, efficiency, security, image, and the banks website.

**Perin Unal (2014)**<sup>29</sup> “An exploratory study on the outcomes of influence strategies in mobile applications recommendations” The study was to explore user context and behaviour in the mobile banking environment. An experimental design, used to measure the impact of influence strategies on 283 respondents was collected through the questionnaire survey. An 8 item persuadably scale was used for data analysis. The study found that persuadable individuals generally liked to accept and take recommendations as a positive attitude towards using mobile applications.

**Rehana Kouser (2014)**<sup>30</sup> “Consumer attitude and intention to adopt smart phone apps: case of business students” The objective of the study was to investigate the inter relationships between customers appraisal of mobile applications in extrinsic prospect and emotional prospect, where the attitude and behaviour intentions are examined. Feedback from 263 business students were taken as sample for data collected. Factor analysis and multiple linear regression analysis were the statically used tools. The study found that usage of mobile applications was highly influenced by aspects of usefulness, ease to use and social needs. The study concluded that app developers must improve ability and contents of the applications to increase user enjoyment.

**Nielson (2014)**<sup>31</sup> “Mobile App Marketing Insights” The study was conducted to find out how the mobile applications are discovered and how the apps promoted the consumers to buy the application. The methodology followed had the eight vertical specific online survey methods. As a result the study found that the users had more choices than ever to utilize apps meet their specific needs. This research concluded that to gain competitive advantage over competitors, marketers must be present wherever smart phone users were looking to discover apps relevant to their interests; and online ads such as mobile app install campaigns should be done.

**Vinoth. S & Rajkumar. R (2015)**<sup>32</sup> in their study on “Customer Adoption of Technology Based Banking Services” intended to provide an insightful understanding of customer’s adoption in their banking transactions through technology channels.

About 750 samples were used for data collection comprising of 25 from each of the 30 branches opted for the study. The research was carried out based on the primary survey method and the data has been collected by giving a structured questionnaire to both public and private sector bank customers. Average-Score and Chi-square analysis were used to validate the data. The results in this study supported that ATM banking remains the most popular banking service among customers followed by Debit and Credit Cards, Mobile banking and Digital Banking. The study was concluded with the result that Technology based banking has become important phenomenon in the banking industry and it will continue as more progress is made in information technology.

**Esther Krupa. M & Rajasekaran. R (2016)**<sup>33</sup> in their research titled “Customer Satisfaction towards E-banking Services in Coimbatore City” focused on the identification of level of customer satisfaction towards e-banking services. Non-sampling technique was adopted with a sample size of 90 respondents for the study. Various statistical tools such as Z-test, ANOVA, and Post-Hoc were used to validate the collected data. The study concluded that customers are highly satisfied with services of e-banking and it showed that demographic factors plays a major role in creating the satisfaction level among the customers.

**Sunith. CK (2019)**<sup>34</sup> the study reveals that most of these technology services have become popular in the country, customers has every opportunity to wilfully choose and exploit the features provided by advanced electronics and information technologies such as automatic teller machines, digital, mobile phones, personal digital assistants and personal computers and experience electronic banking services through privileges and facilities delivered with assistance from modern technologies. The study suggested the banks to incur capital costs and incorporate advanced technologies to save on operating costs and to earn customer goodwill and thereby extracting maximum returns from such assets while cutting down operating expenses at the same time. The study distinguished customer from a consumer in the sense that a customer pays for a product or service while a consumer is the end user who experiences a product or service.

**Sathyabama. K (2019)**<sup>35</sup> examined the factors which influence customer satisfaction towards Digital banking. The results revealed that web design, security and privacy and convenience are the service quality dimensions that the customers preferred over the other measures. With the use of a questionnaire survey, 120 working adults participated in this study have provided valuable feedback and responses pertaining to the above factors that influence customers' decision to do Digital Banking. Among the factors observed, that Security, website design and ease of use are closely associated to customer satisfaction of Digital banking services.

### **2.2.2 National reviews to identify the opinion of banking customers regarding the purpose of usage of digital banking services Indian banking sector**

**Frei et al. (1999)**<sup>36</sup> empirically found that the firms that had both above average process performance and below average process variations were likely to have better financial performance which means that good, consistent service processes could increase firms' profit. Hence it very important in the current situation as today's financial institutions employ multiple delivery channels backed by technology like branches, call centres, mail, ATMs, Digital banking, mobile banking etc. Hence banks investing in development of new service delivery channels need to understand the impact these channels will have on process variability and ultimately on firms' performance. Although delivery is highly important in fulfilling customer needs, perceptions and expectations also needs to be managed and the website plays a main role in this.

**Boss et al. (2000)**<sup>37</sup> found that introduction of ATMs in banks will cut costs by reducing need for tellers. In fact, consumers did not stop using tellers to the extent banks had hoped, but they also used ATMs frequently that the reduction in cost per use was more than offset by the higher volume of transactions.

**Bussakorn Jaruwachirathanakul & Dieter Fink (2005)**<sup>38</sup> used theory of decomposed planned behaviour for studying digital banking adoption in Thailand. They conducted survey of 528 digital users for large companies. The results showed that factors that encouraged adoption of digital banking are features of website, perceived usefulness while the factors that impede adoption was external environment which includes government support, infrastructure etc. Important moderating variables were gender, education, income but not age.

**Diniz E., Porto R. M., & Adachi T. (2005)**<sup>39</sup> in their study tried to develop a methodology that to help researchers and managers to build digital environment. They tried to evaluate the three variables; functionality, reliability, examined the security of a transactional digital banking site, and usability. This study was conducted in three Brazilian banks. For 'Functionality' dimension, all the basic services are available at the digital banking sites but for higher levels of banking it needs strategic redefinition which will affect the internal organization also. In terms of reliability, all the three banks had very good security architectures which guarantee reliability to satisfy a large and varied public. In terms of usability, customization should be available to customers so that they can customize it as their requirement.

**Daniela R. & Octavian Dospinescu (2005)**<sup>40</sup> in their study, have described that digital, phone, mobile or electronic banking which have been offered on the Romanian banking market are in full development process, and the banks have to win the confidence of individuals and corporate body customers, taking into account the fact that the transactions that are made on the online system are perceived as incorporating a high-risk factor. The level of accessibility regarding the performance of banking operations straight from the company office or from home without depending on the opening hours of pay-offices determines a growing number of customers to resort to these kinds of services. The author has also pointed out that the role of banks, in this sense is very important, consisting in the rise of the knowledge level in most modern practices, work techniques and in the adjustment of customers to them.

**Raed Awamleh & Cedwyn Femandes (2005)**<sup>41</sup> evaluated websites of foreign and local banks in the United Arab Emirates and through a survey of users, ascertain factors that influence customer satisfaction of the digital banking service. The effects of age, gender, number of years on an Digital banking user, were also explored. Security of Digital banking transactions was significant for those using Digital banking for more than 2 years, not for others. The results suggested that the adoption and acceptance of digital Banking services depends on the value-added services that the bank offers. The paper assessed the extent to which UAE banks have adopted Digital Banking to take advantage of opportunities in providing market information, delivering banking products and improving

customer relationship. The study was conducted into two folds. Part, one analyzed the websites of banks in the UAE using the Diniz model to assess the extent of adoption while part two considered the factors that impact the satisfaction of Digital banking users.

**Floh, Arne & Horst Treiblmaier (2006)**<sup>42</sup> in their article found that satisfaction and trust directly affects the loyalty of e banking. Website quality is very important influencer and thus it should be easy to use and layout should also be easy. Other factors like age and gender, variety seeking behaviour, involvement, technophobia influence the loyalty, trust and satisfaction.

**Yoon C. (2010)**<sup>43</sup> tried to investigate the factors resulting in customer satisfaction with online banking in China, and also explored the effect of experience on relationship between these factors and customer satisfaction. They used factors namely ease of use, design, security, speed, information content and customer support service. The data was collected from white collar workers and students. The results revealed that design, security, speed, information content, and customer support service have significant effect on customer satisfaction in both; high experience or the low-experience group, but ease of use did not have a significant effect on customer satisfaction in either of the groups.

**Alsajjan, Bander & Charles Dennis (2010)**<sup>44</sup> collected data from 618 students in UK and Saudi Arabia and applied cross market approach and invariance analysis to know behavioural differences between 2 countries. They concluded that importance of trust and perceived usefulness differs between UK and Saudi Arabia and thus different cultures affect technology perceptions differently. They also coined the construct ‘Attitudinal Intentions’ meaning attitudes and intentions both together can be used to predict the actual usage of digital banking. Thus, the beliefs will influence attitudinal intentions and they in turn will predict actual behaviour.

**Derek Flood (2011)**<sup>45</sup> “Evaluating mobile applications: A spread sheet case study” was analysed where the range of usability issues were encountered at all stages of the mobile application life cycle. The study conducted research on the selection, installation, usage and removal of mobile applications. The objective of the study was to evaluate the user interaction with mobile applications. 53 participants were enlisted through a number of social media platforms including Facebook and LinkedIn were surveyed. The study

found that the user's behaviour is on the lifecycle of a mobile application from when it is released into the market until it is removed from a mobile device. The study concluded that installing an application was not problematic to the users than searching for an application.

**Lloyd Banda<sup>46</sup> (2011)** "What are the main determinants for the attitude to use mobile phone application in Suriname" The objective of the study was to identify what were the main factors for the intention to use mobile application. 148 respondents had filled the questionnaire. The statistical analysis tools like descriptive analysis, Regression and Correlation were used. The study found that the factors perceived enjoyment, compatibility and usefulness as important factors, which had a positive effect on attitude towards using mobile applications. The study concluded that the perceived usefulness, image and enjoyment are linked with greater intention to use.

**Kyle Bowen (2012)<sup>47</sup>** "Student's preference for digital application usage" The main objective of the study was to determine how far the students were aware about digital banking applications and how far they make use of all the features in these applications. Among the respondents 20 per cent of them were higher secondary and the remaining 80 per cent of them are college goers. The analysis used is Functional category and connectivity matter analysis. The study displayed that speed rating was 68 per cent and the ease of using given was 78 per cent. It was concluded that this age group of users mostly used games and social media applications.

**Thomas Rakestraw (2012)<sup>48</sup>** "The mobile application case study" The study was conducted to know how the applications were sold and the span of the applications were analysed. The methodology used was simple survey method. Main objective of the study was to know how the applications were being downloaded and the attitude towards the applications newly discovered. Also, the life spans of the applications were published. As a result, it is found that the average life span of an application is 6 years, after which its market value falls into decline stage. In fifth year, most of the applications fall in maturity stage.

**Victoria Seitz (2016)<sup>49</sup>** "The effectiveness of branded mobile banking applications on users brand attitude and purchase intentions" The purpose of the study was to examine the attitude of users towards branded apps. 50 respondents were analysed and surveyed.



A seven-point semantic differential scale was used. The study found that branded apps had to be useful, pleasant, likeable and good to maximize use by technological users. The study concluded that branded apps were a potential and effective marketing tool. App developers must personalize their brand for user relation and more attention.

**Harleen Flora (2014)**<sup>50</sup> “An investigation on the characteristics of mobile banking applications: A survey study” had contributed towards the understanding of mobile software and trends in mobile software and trends in mobile banking applications development. The study conducted an online survey from the mobile research and development community. 130 respondents had participated in this study. Both quantitative and qualitative analysis was done in this research. The study concluded that mobile phones were also agents in significant events, where the apps developed should be invariably interactive and must prove efficient.

**Ling, Fern, Boon & Huat (2016)**<sup>51</sup> researched the antecedents of customer satisfaction in Digital banking. They found five factors having an effect on customer satisfaction. These factors were: service quality, web design and content, security and privacy, convenience and speed. The results concluded that perceived ease of use, content web design and speed are most important factors critically related to customer satisfaction towards digital banking services.

**Interpret Tap Joy Company (2017)**<sup>52</sup> “Mobile attitude and segmentation research” was a study made to know about the attitude of the consumers and how they use the mobile banking application. As a result the study found that most of the consumers buy application for free and they were more engaged with the open advertisement in hope of earning profit. They sometimes, even downloaded applications for getting some return benefit. The study concluded that 76 per cent of the users had purchased apps for entertainment related operation and only 12% are using mobile banking application.

### **2.3. Reviews pertaining to identify the issues and challenges faced by customers while adopting digital banking services**

#### **2.3.1 International reviews to identify the issues and challenges faced by customers while adopting digital banking services on banks operating outside India**

**Subbarao (2009)**<sup>53</sup> puts forward that with the increase in the technology investment, productivity is likely to increase. This will lower costs and the forms will operate more effectively. IT and innovations are seen as strategic tools for they ensure financial transactions at lower cost and proper allocation of financial resources. This leads to improved competitiveness and efficiency of financial institutions. Technological innovations increase the reach of the banking service and also the capacity to grow enhances.

**Kavitha (2011)**<sup>54</sup> “A study on customer attitude towards smart phone” is a study about the consumer’s attitude towards mobile applications. This study saw how the consumers download the applications and how they use them. The average time taken to download an application and why the consumers uninstall an application was analysed. As a result, it was found that the new innovative mobile applications replaced the old ones. In order to extend the span of old application it was recommended to update the application.

**Modi et al. (2013)**<sup>55</sup> revealed that factors such as trust, intention, convenience, awareness and security are influencing the customers’ acceptance of Digital banking services in Ahmedabad, India. They have suggested that banks should design their Digital banking website as more user-friendly, less complex in order to encourage their customers to use it. Also, the young generation should be targeted as they are more conversant with the latest technologies.

**Aparna Chatterjee (2016)**<sup>56</sup> “Factors affecting customer adaptation towards mobile apps in West Bengal” The study examined a detailed understanding of how and why specific factors affect the consumer decision towards mobile applications. The objective of the study was to find out the dimension of consumer preferences regarding the usage of mobile apps in West Bengal. A survey was conducted among 150 respondents by structured questionnaires. The statistical tools such as descriptive statistics and exploratory factor analysis were used. The study found that the factors such as timely

information, security, better performance, highly effective technology, user friendliness and perceived monetary risk had determined the adoption towards mobile applications among the consumers. The study concluded that marketers need to provide reassurance and valid info to the consumers.

**Bhupendra Singh Hada (2020)**<sup>57</sup> examined digital banking on the customer satisfaction from Indian banking sector. The objective of this study was to gain the insights on the customers' behaviour and satisfaction in using the digital banking services. The researcher focused on various important factors that could affect the satisfaction of the customers in India. It was evident that factors like perceived usefulness, perceived ease of use, respondents' awareness, and problems faced, their trust, security and privacy etc did influence the customers' behaviour towards digital banking. The results showed that factors like usefulness and ease of use play an important in the usage of digital banking. Also factors like security and trust have a sort of discouraging impact on them. Further, the results revealed that customers prefer private sector banks than the public sector banks towards digital banking services.

### **2.3.2 National reviews to identify the issues and challenges faced by customers while adopting digital banking services on Indian banking sector**

**Sathye (1999)**<sup>58</sup> found that two factors such as “difficulty in use” and “security concerns” are important reasons that customers do not want to use services. The researcher finds that customers opted convenience as a primary reason for availing digital banking services. It is also suggested that banks with extensive branch office system and ATM network would have the opportunity to attract customers who are in this convenience segment.

**Marenzi (2002)**<sup>59</sup> analysed the banking industry that has tried to take advantage of the productivity and the customer service gains associated with the technology by providing ATMs which consumers can use to carry out day-to-day banking transactions. It is very important to understand the customer preferences, attitudes and adaptations of

these services in order to properly use them as marketing tools to attract new clients and retain existing clients. A large number of consumers are resistant to the new way which represents loss of personal contact

**Guda Neeraja (2005)**<sup>60</sup> in the study, “E-business Trends and Issues”, analyzed the opportunities and challenges presented by the advent of e-business to the business. One of the key parameters on which companies are being evaluated for their marketing efficiency is how well they can adapt themselves to the Digital and exploits the advantages of e-business. Every company must learn to implement far-reaching changes within themselves to take advantage of the new ways the digital allows to perform such functions as purchasing, customer service, marketing and distribution and interaction with business partners. The more an organization can use the digital to tie together the corporate infrastructure goals and technology, the more effective it will be in realizing its goals and successes. The paper has also explained stages in e-business cycle and benefits of e-business to an organization.

**Hun Choi (2012)**<sup>61</sup> “The understanding of building trust model on smart phone application: focusing on users’ motivation” The objective of the study was to investigate the effects of motivational factors on the trust. 231 sets of data collected from respondents are smart phone users. The PLS (Partial Least Squares) Model was used in this study for the purpose of finding out what really drives the trust and satisfaction towards apps. The study found that extrinsic motivation on users’ trust had a stronger impact rather than intrinsic motivation on users. Also, factors such as entertainment and utilitarian purposes are satisfying the users while using mobile applications. The study concluded that mobile applications were expected to be influential because the number of the smart phone users was increasing.

**Ericsson (2014)**<sup>62</sup> consumer insight summary “From apps to everyday situations” Applications drive the growth on prior smart phone usage with digital going beyond only communication and entertainment of users daily activities. Users begin using apps from the morning, from the time they wake up, making the digital, a day-to-day necessity.

The report supposed that perceived ease to use was the main reason for spontaneous and unplanned behaviour towards using smart phone apps by the user. It concluded that app culture was a tool for a new way of living.

**Abdullah et al. (2016)**<sup>63</sup> investigated on “Perceived Risk and Intention of Adopting Digital Banking” with an aim to examine the effect of performance, social, time, financial and security risk on the intention to use digital banking. The population taken for this study was Nigeria graduate students of University of Utara Malaysia with a representative sample of 120 students using digital banking services. Multi-Co linearity tests, Pearson Correlation, Multiple Regression analysis were used to validate the data collected. The findings of the study showed that the intended risks taken for the study negatively influenced intention towards the use of digital banking services. The study concluded that in order to improve the students’ intention to use, certain methods have to be adopted and the digital policy makers should add more value and reliability to online transaction to boost the development of digital banking.

**Amin (2016)**<sup>64</sup> examined the quality of digital banking services and attempted to understand the influence it had on e-customer satisfaction and e-customer loyalty. The researchers collected the data from 520 (originally 1000) digital banking customers and used SEM for analyzing the data. The results established that the all four dimensions taken into consideration for the study namely “personal need, site organization, user friendliness, and efficiency of website” are the factors of digital banking service quality. The findings also revealed that each of the dimensions had a significantly positive relationship with digital banking service quality. Therefore, the research findings confirmed that there is a significant association between digital banking service quality and e-customer loyalty. Thus it was concluded that a high quality of digital banking service quality leads to e-satisfaction among customers which in turn leads to e-loyalty.

## **2.4. Reviews pertaining to quantify the various security measures adopted by customers while using digital banking services**

### **2.4.1 International reviews to quantify the various security measures adopted by customers while using digital banking services on banks operating outside India**

**Turben et al. (2000)**<sup>65</sup> have stated that many banks with e-banking / digital banking facilities offer PC-based home banking products and services to perform a variety of services at home. They have further stated that e-banking offers electronic services that allow customers to check the balances in their accounts, transfer funds among accounts, pay bills electronically. And also, customers can apply for loans, view cheques and can deposit slips. Results revealed that customers preferred to download information about accounts into their own computers, trading stocks and mutual funds.

**Aladwani (2001)**<sup>66</sup> identified Digital security as the leading future challenge of online banking. Customers are concerned with their privacy when using IT based services. For example, some customers may have the impression that the digital is not a secure environment for transactions and they may fear that “someone will have unlimited access to personal financial information”.

**Rashedul Islam (2010)**<sup>67</sup> “Mobile application and its global impact” examined the users’ effect of mobile application in individuals, business and social area on the ethical manner. The survey for the study was collected from different statistical data. The results reveal that mostly, customers tried to use digital services and mobile digital applications as a substitute of desktop digital applications. It was found that the number of mobile application downloads have also grown to nearly 50 billion from just over seven billion in 2009, which predicted that mobile apps will eclipse the traditional desktop digital and will kill the desktop in the upcoming years.

**Munusamy J., Annamalah & Chelliah S. (2012)**<sup>68</sup> tried to identify the differences between Digital Banking Adopters and Non-adopters the Malaysia. The researcher identified that the results shown a significant difference between digital banking adopters and non-digital banking adopters in terms of quality dimensions that includes ease of use, convenient, reliability, requirement for digital connections and most importantly safer to use.

Thus this study suggested managerial implications for retail bankers in the country Malaysia to create awareness about benefits and to reduce risk perception of the digital banking among the non-adopters.

**Patel Nidhi (2016)**<sup>69</sup> “Analysis of usability metrics for mobile applications” The purpose of the study was to examine what metrics should be improving in terms of usability of mobile applications. 500 respondents were participated in the survey whose feedbacks were analysed. The study found that applications should have usability as a quality factor. The study concluded that applications are to be simple and fast if users felt any difficulty to use. Otherwise, they would leave it as option and move on with another application available for them.

**Pratima Merugu G (2018)**<sup>70</sup> examined the passage of time people are accepting new technology or there is still a lot of perceptual blocking which hampers the growth in Vishakapatnam. It is found that peoples reluctant towards change in technology and work on old track. The author analyzed various reasons for the slow acceptance of digital banking accounts that includes giving proper training to customers for the use of digital banking services thereby creating trust in the minds of customers.

**Ram Babu Cherukur (2020)**<sup>71</sup> analysed customer perception towards the usage online banking during the pandemic situation to study the customers satisfaction and opinion about digital banking services. The study found that there is no significance difference among the age with respect to covid19 increase the usage of online banking. The banks need to create more awareness among the public and digital platform usage by the public so that digital banking services can become a better solution to the non-flexibility problems.

#### **2.4.2 National reviews to quantify the various security measures adopted by customers while using digital banking services on Indian banking sector**

**Jun & Cai (2001)**<sup>72</sup> identified service quality dimensions of digital banking service quality. The study concluded that the number of users and popularity of mobile applications were increasing day by day. In proportion, the mobile manufacture companies and mobile application developer companies must increase their capacity quality and functionality.

The results suggested that service quality dimensions such as accessibility, reliability and responsiveness are significant to both traditional method as well as new digital banking services.

**Sadiq Sohail. M & Balachandran Shanmugham (2003)**<sup>73</sup> examined 300 respondents to find customers' preference. Results revealed that there are no significant differences between the age and education of the electronic and traditional banking users but some differences exist on other demographic variables. Affluent respondents have more inclination towards digital banking in terms of security and risk involved. Further Analysis revealed that awareness of e-banking, accessibility of Digital, and customers' reluctance to change are the factors that considerably affected the usage of e-banking in Malaysia.

**Casaló, Luis V., Carlos Flavián & Miguel Guinalú (2008)**<sup>74</sup> wanted to recommend measures to increase client base in ever increasing competition. They tried to find influence of satisfaction and web site usability on customer loyalty and positive word of mouth. Their hypotheses were accepted stating satisfaction is antecedent of loyalty and word of mouth and that website usability helps gaining customer satisfaction.

**I-Jabri, I. M., & Sohail, M. S. (2012)**<sup>75</sup> conducted study in Saudi Arabia for mobile banking. The researcher analysed the factors that contributes to the bankers to plan for digital banking services that are convenient for banking customers. They used Diffusion of Innovation as a base theory. Data was obtained from 330 mobile banking users. It was found that relative advantage, observability and compatibility had positive impact on adoption but trial ability and complexity had no significant effect on adoption. Perceived risk had negative impact on mobile banking adoption.

**Andrea Potgieter (2015)**<sup>76</sup> "The mobile application preferences of UG university students: A longitudinal study" the article centred the smart phone apps preferences in the growing market of smart phone users. 522 respondents were surveyed by purposive approach and analysed. The study found that price and size of an app are the major considerations before searching for and downloading an app. The survey enhanced that users were aware of security risks and were expecting privacy in their information while using application.



**Global Study (2016)**<sup>77</sup> this research analysed about the customers expectation and the actual benefits given by banks with regarding to digital banking applications. The samples determined that mobile applications, rather than mobile websites were very easy to do tasks and were user friendly. Most of the respondents had used mobile applications for easy convenience and speed. Moreover, apps were mainly used because they are categorized according to their features so it can be used easier with less time

**Farooqi (2017)**<sup>78</sup> point out that reliability of the network is the customers' main concern. For example, remote users in all corners of the world are allowed to access important files on computers and information is transferred via the Digital. Whenever personal financial data is transmitted over the electronic network there are risks of the theft of this information by unauthorised parties or of misuse by the bank collecting it. Customers cannot, therefore, observe a teller's behaviour directly and so cannot depend on things like physical proximity, handshakes, and body signals of the teller. Therefore, if customers have a high level of trust in the Digital banking system, they are also likely to have a high intention to use the system.

**Ahmad Shatat (2017)**<sup>79</sup> in his study entitled "Factors Affecting the Adoption and Usage of Online Services in Oman" focused on the users willingness and factors that would boost the usage of online services in Oman. The data for the study was collected from 270 users of online services in Al-Batinah North Region of Oman The results of the study clarified the main factors that influence the decision of Oman is and other residents to adopt and use the online services that are provided by many firms in the Sultanate of Oman.

## **2.5. Reviews pertaining to develop service quality dimension model that analyses the adoption and acceptance level of Digital banking services**

### **2.5.1 International reviews to develop service quality dimension model that analyses the adoption and acceptance level of Digital banking services on banks operating outside India**

**Unnithan et al. (2001)**<sup>80</sup> explored the drivers for change and movement towards banking by comparing two economies viz – Australia and India by incorporating TAM Model. The researcher found that Australia may be a country with Digital ready infrastructure whereas India is observed with weak infrastructure, low public penetration

especially in rural sector. Although many major banks have started offering Digital Banking services, the slow pace may continue until the majority of the public is reached. However, the upsurge of Information Technology professionals with increasing demands is compelling the government to facilitate and develop new initiatives for a wider spread of Digital Banking.

**Hardeep Singh Chawla et al. (2012)**<sup>81</sup> analysed the use of digital banking and found that it is highly needed especially when the whole world is moving towards electronic devices, giving rest to paper and pen. It analyses the factors that influence the usage of digital banking services among college students and also to analyse their preference towards digital banking using TAM Model. It is seen that the usage of digital banking services among young generation is growing and the number of digital banking users have increased in number. The five major factors seen are perceived simple use, trust, perceived usefulness, promptness and perceived enjoyment that impact the behaviour of a private and adoption of digital banking services.

**Karamjit Kaur & Rajneesh (2014)**<sup>82</sup> pointed out that in the past few years, the Indian banking sector has completely transformed. The banks face many challenges, and lots of opportunities are available with the banks. Using regression analysis on the data collected from 194 digital banking customers, the result obtained showed a significantly impactful association of digital banking dimensions with customer satisfaction. Every dimension namely, “efficiency, system availability, fulfilment, privacy, contact, and responsiveness” individually contributed significantly to the overall customer satisfaction.

### **2.5.2 National reviews to develop service quality dimension model that analyses the adoption and acceptance level of Digital banking services on Indian banking sector**

**Joseph et al. (1999)**<sup>83</sup> explored the factors that influence of the delivery channel of various digital banking services. The results revealed six dimensions of digital banking service quality that includes accuracy, feedback, convenience, complaint management, accessibility, effectiveness, queue management, and customization benefits.

**Pikkarainen T, Kari Pikkarainen, Heikki Karjaluo & Seppo Pahnala (2004)**<sup>84</sup> investigated online banking acceptance considering the traditional technology acceptance model (TAM). Interviews were conducted with professionals in banking and other

financial sector. The researcher proposed a model indicating online banking acceptance amongst private banking customers of Finland. Along with TAM variables, they used 4 other variables like perceived enjoyment (PE), information on online banking, privacy and security, and the quality of the digital connection. The findings of the study indicate that perceived usefulness and information on online banking on the Web site were the main factors influencing online-banking acceptance along with PEOU, PE and security and privacy. But quality of digital connection was not significantly influencing online banking acceptance.

**Lai V.S. & Li. H (2005)**<sup>85</sup> wanted to analyze TAM whether, the findings of various descriptive researches done using it, the survey respondents understood the survey items in the same way as by others. For this they used invariant analysis. They used age, gender and IT competency to examine its effect on TAM's response. They found that any gender: male or female, any age: young or old with High or low IT competency conceptualizes TAM constructs in the same way. This means that findings does not suffer from bias of age, gender and IT competency.

**Lee (2005)**<sup>86</sup> proposed a new research framework integrating TAM and TPB with additional variables namely perceived risk and perceived benefit, in the context of adoption of online banking. This study found that factors namely PU, subjective norms, attitude, perceived behavioural control and perceived benefit have positive influence on customers 'intentions to use the technology. While perceived risk factors, especially financial risk have adverse effect on the adoption and usage of online banking.

**Amin (2007)**<sup>87</sup> by extending TAM, the author has developed an extension of the TAM model which is using additional constructs such as computer self-efficacy (CSE) and perceived credibility (PC) along with original constructs; Perceived ease of use (PEOU) and perceived usefulness (PU). The result showed that is PU, PC and PEOU are positively associated with behavioural intention. These variables are good determinant for acceptance for digital banking amongst undergraduates. The results also suggested that CSE had positive relationship with PU and PEOU but CSE did not associate with PC.

**Nadim Jahangir & Noorjahan Begum (2008)**<sup>88</sup> carried out study of 227 banking customers in Bangladesh to study the influence of perceived ease of use (PEOU), perceived usefulness (PU), security and privacy, attitude on customer adaptation. It confirmed two paths i) perceived usefulness, perceived ease of use, security and privacy to attitude, and attitude to customer adaptation ii) perceived usefulness, perceived ease of use, security and privacy to customer attitude and customer adaptation, customer attitude to customer adaptation.

**Nor & Pearson (2008)**<sup>89</sup> developed a theoretical model based on DTPB for investigating the significant factors influencing the bank customers 'intentions to adopt Digital banking services. They have added another important construct to the DTPB basic model, Trust, which is perceived to be a critical component in building relationship virtually. It has been found that all the four constructs: attitude, subjective norms, perceived behavioural control and trust have significant influence on users 'intentions to adopt Digital banking services.

**Al-Somali et al. (2009)**<sup>90</sup> examined the factors that determine the customers 'intention to use online banking in Saudi Arabia. They have extended the TAM by adding little significant control constructs namely, the quality of Digital connection, awareness of online banking and its benefits, trust, social influence, self-efficacy, resistance to change and demographic characteristics. This study's results revealed that about 85 percent of the variance in attitude was explained by factors including PEU, PU, resistance to change, trust, age, gender, education and income. Two significant factors: PU and Attitude towards Digital banking usage are having strong effect on adoption intention, thus explaining 83 percent of variance together.

**Aldas-Manzano et al. (2009)**<sup>91</sup> analysed the influence of TAM constructs of Digital banking acceptance by integrating personal computer factors namely perceived risk, trust and financial services involvement. The data collected through online survey of 511 Digital banking users, was measured and interpreted through SEM technique. This study found that: the influence of financial services influence was significant PEU, but not PU; PU was having positive effect on Digital banking use whereas PR was having negative impact on IB use; and PEU had stronger effect on PU and trust, thus indirectly affecting the use of Digital banking.

**Carsten Roker (2009)**<sup>92</sup> “Perceived usefulness and Perceived ease-of-use of ambient intelligence applications in office environment” The purpose of the study was to examine usefulness and ease-of-use of technological applications. 200 questionnaires were distributed for the survey and analysed with Technology Acceptance Model (TAM). The study concluded that the knowledge of users’ requirements and acceptance have to be considered for potential improvement regarding user’s usefulness and ease-of-use norms.

**Oni. A. A., & Ayo. C K. (2010)**<sup>93</sup> investigated the level of acceptance of the digital banking services and explored the factors that predicts behavioural intentions to use digital banking systems in Nigeria. They used TAM and extended it with additional factors like Perceived Credibility and Computer Self-Efficacy. They collected data from 292 commercial bank customers. The results revealed that the most widely used form e-banking was ATM. Those customers who were active users of e-Banking system used it as it was convenient, time saving, easy to use, and appropriate for their transactional needs. In addition, the network security and the security of the system in terms of privacy were major concerns of the users and form impediment to intending users.

**Abu Shanab, E., Pearson, J. M., & Setterstrom, A. J. (2010)**<sup>94</sup> extended the Unified Theory of Acceptance and Use of Technology (UTAUT) by using factors namely perceived facilitating conditions and personality dimensions. They selected samples from three cities and collected 940 responses from current digital banking users. They also studied demographic variables and their influence on performance and effort expectancy, social influence and facilitating conditions. The results concluded that performance expectancy, effort expectancy, and social influence are important predictors of behavioral intention. They also found that performance expectancy was stronger for men and for older (= >30 years of age) individuals. Moreover, perceived facilitating conditions was not a significant predictor of behavioural intention while significant predictors of behavioural intention were self-efficacy, perceived trust, and locus of control and also perceived trust.

**Chong et al. (2010)**<sup>95</sup> analysed the factors predicting the intentions of customers in Vietnam, to use Digital banking, through understanding their perception towards the

acceptance of this technology. Two additional constructs namely government support and trust were added to the TAM to address the adoption of online banking. All the hypothesised relationships were significant except PEU.

**Yee, B. Y., & Faziharudean, T. M. (2010)**<sup>96</sup> developed a model to study factors that affect the customer loyalty of digital banking websites. Customers tend to switch between banks and are not loyal towards one bank. Factors considered were trust, habit, reputation, perceived value and service quality. The results showed that reputation, trust and habits is important predictor of customer loyalty while service quality and perceived value are not significant predictor of customer loyalty. Amongst all, reputation is the most important factor. Thus, if customers are made to use the websites more, they will form a habit and will not switch to other bank. Efforts should be made to increase the reputation by doing campaigns or advertising regarding bank and its website. For trust factor, authors suggested that banks should satisfy customer needs and should be consistent in providing services to increase loyalty.

**Dimitriadis Hannu Verkasala (2010)**<sup>97</sup> “Analysis of users and non-users of smart phone applications” the purpose of the study was to identify what really drives the intention to use these applications across users and non- users. Data from 579 respondents had been used for panel study. The study included an extended TAM model to explain the intention to use. The study found that technological barriers negatively affect behavioural control, whereas directly linked up with usefulness and enjoyment. The study concluded that not everyone was using mobile applications facilitated by smart phones.

**Susanne Niklas (2011)**<sup>98</sup> “Exploring the impact of usefulness and enjoyment on mobile service acceptance: A comparative study” The key aim of study was to examine the factors that push users towards mobile technology acceptance. 155 students were sampled and analysed by using TAM model. Survey found that mobile desire, received satisfaction and mobile readiness lead for further mobile usage intention.

**Im, Hong & Kang (2011)**<sup>99</sup> in their study, investigated the relationships of the variables in the UTAUT model to understand how they are affected by cultural differences in adopting technologies like MP3 and Digital banking. The impact of performance expectancy, social influence and facilitating conditions was not different between the two

countries (Korea and U.S) samples studied in this research. This study used all original constructs in the UTAUT and the model was tested with the help of Structural Equation Modelling. The impact of effort expectancy on behavioural intention was found to be greater among the U.S. users than Korea in this study.

**Giovanis, A. N., Binioris, S., & Polychronopoulos, G. (2012)**<sup>100</sup> extended TAM and used perceived risk in their study. They used factors namely compatibility, perceived usefulness, perceived ease of use, perceived security and privacy risk, customer demographics and IT competences and its effect on with customers' intentions to adopt digital banking in the future. They collected data from 212 respondents using a questionnaire by personal interviews. The results showed that service compatibility is the most important factor shaping customers intention. PU, PEOU, security, privacy and risk mediate relationship between compatibility and customer intentions. Also, in terms of the influence of individual differences on customers' beliefs about compatibility, value and risk elements, young, mostly male customers, with sufficient prior IT experience, are a more promising group to use digital banking to perform their financial transactions in the future.

**Kyung Young Ohk (2015)**<sup>101</sup> "The influence of perceived usefulness, perceived ease to use, interactivity and ease of navigation as factors of satisfaction in mobile applications" The study was to explore the effects on perceived usefulness, perceived ease to use, interactivity and ease of navigation on satisfaction in mobile applications by using TAM (Technology Acceptance Model). 275 respondents were surveyed. The purpose for the study was to figure out the psychology of consumer behaviour towards mobile applications for improving application services.

**Munir (2015)**<sup>102</sup> examined the association of e-banking service quality dimensions namely service quality, information quality and system quality with customer satisfaction among e-banking users in Bangladesh. A total of 200 respondents were included in data collection and data was analyzed with multiple regression analysis and ANOVA. The result revealed that all the e-banking service quality dimensions had a significant positive relationship with customer satisfaction among the users.

**Shiu-Wan Hung (2016)**<sup>103</sup> “The Adoption Intentions of Mobile Applications” The study determined the concepts of attitude towards mobile applications among the mobile application users. The data for this study was done through online survey method on 320 respondents with valid questionnaires. The SEM model was used for the empirical study by a five point likert scale. Research results revealed that perceived usefulness, self-efficiency and perceived playfulness had a positive effect towards user’s behaviour attitude of going on with mobile applications and there was a significant role of compatibility and self-efficiency of users attitude, belief and perceived behavioural control. It concluded that attitude and behavioural control would surely affect the users’ use/purchase of mobile application.

**Sadaf Firdous & Rahela Farooqi (2017)**<sup>104</sup> studied the impact of Digital Banking Service Quality on Customer Satisfaction” has been a study undertaken. The objective of the study was to examine the relationship between the customer satisfaction and the various digital banking service quality dimensions among the digital banking customers in New Delhi. Judgmental and Convenience sampling was used to collect the response from 194 digital banking customers. The results of the study implicated that the digital banking service quality dimensions have a significant impact on the customer satisfaction of digital banking customers. The study concluded that bank managers and policy makers have to implement undeviating efforts and resources most effectively and efficiently to increase the bank business in the long run and encourage new customers to adopt digital banking and to retain the existing ones.

**Samar Rahi, Mazuri Abd Ghani & Feras M I Alnaser (2017)**<sup>105</sup> analysed the factors that influence the digital banking services and customers perception on Brand Loyalty of Banks that leads to Digital Banking Adoption. The study is based on the Structural Equation Model aimed to measure the E-customer service which is the core dimension of e-service quality with digital banking adoption and Brand loyalty of Banks. The study has adopted self-administered survey to approach digital banking users in major cities of Pakistan. The data was analyzed through performing various quantitative measures such as Correlation and Structural Equation Model (SEM) by using AMOS. The results concluded that there is a significant influence on digital banking adoption and brand loyalty by digital banking services and its perceived value.



**Agwu Me (2017)**<sup>106</sup> analysed about retail customers and adoption of Digital Banking Services in Nigeria. The study has adopted Technological Acceptance Model (TAM), a model which has been used to explain consumers' intention to use a technology. Respondents for the study were bank managers, bank customers and students. The researcher identified that all dimensions importantly privacy, web design and security are significant factors that affecting the customers adoption of various digital banking services in the country Nigeria.

**Afshan S (2018)**<sup>107</sup> intended to identify the types of web service and to evaluate the effect of E-CRM features on customer satisfaction provided by the personal banks sector in Pakistan. The empirical analysis was carried out using a structural equation model. Seven service quality dimensions selected from the SERVQUAL instrument have been discussed in this study. The researcher examined the roles of E-CRM features in enhancing service quality and customer satisfaction at different stages of transaction cycle. His research highlighted the critical dimension of service quality, which managers in the banking sector should invest in their customer satisfaction strategies.

## **2.6 RESEARCH GAP**

The previous analysis and reviews of literature identified significant gaps that will be explored in this thesis. Since, ever-dynamic nature of customer expectations, force from the Government, Introduction Digital India Scheme by Government of India, Commercial banks are in force to deliver innovative products and services by implementing innovative technologies that include ATM, Digital Banking services, Mobile Banking services, etc. So, India has recognized well the significance of communication technologies for smooth functioning of banking activities. Also, most of the studies are in the area of measuring level of satisfaction of customers of Indian Commercial banks in Coimbatore city. In India, there has been a constant literature gap on this issue. Another study has been made on the genesis and growth of customer service in commercial banks, the customer opinion about customer service and their satisfaction level derived by them from general banking services and the mechanism of Banking Ombudsman Scheme with special reference to metro and urban branches in Tamilnadu and other states in India.

Hence, it becomes necessary for continuous research to measure level of satisfaction of customers and to offer suggestions to commercial banks to improve their services in order to survive in the society. There are very few researches on Digital banking services in public sector banks and/or private sector banks in the city of Coimbatore. It is also observed from the previous studies/researches that there is a constant literature gap on Digital banking services in India. There is a significant number of literature reviews on the customer satisfaction in the Indian banks at national and international level but the combined researches or reviews on the adoption and acceptance level of Digital Banking in terms of service quality dimension is not available in the city of Coimbatore. Since the previous study and researches conclude that the existence of constant literature gap relating to Digital banking services in India and with specific to the city of Coimbatore, the present study is raised with the objective of filling up of the gaps in the field of Digital banking services and customer satisfaction in service quality dimension in the city of Coimbatore. So, the researcher is decided to make a study on adoption and acceptance level of digital banking services in service quality dimension in Coimbatore district.

Thereby, this thesis undoubtedly will be an added advantage to Indian bankers to know the customer attitudes, thoughts and expectations relating to digital banking services by providing superior quality services to the customers.

## REFERENCES

1. Azouzi, D. (1970). The adoption of electronic banking in Tunisia: An exploratory study. *Journal of Internet Banking and Commerce*, 14(3), 1–11.
2. Bernardo Batiz-Lazo, B., & Wood, D. (2002). Information technology innovations and commercial banking: A review and appraisal from an historical perspective. *Economic History*.
3. Khan, B. S. (2004). Consumer adoption of online banking: Does distance matter? *UC Berkeley*. <https://escholarship.org/uc/item/2bt1d76s>. Department of Economics.
4. Richard, S., & Zhu, W. (2005). *'Internet banking: An Exploration in Technology Diffusion and Impact'*, *Payment System Research Working Paper 05-05*.
5. Mobarek, A. (2007). E-Banking Practices and Customer Satisfaction - A Case Study in Botswana. In. *SSRN Electronic Journal 20th Australasian Finance and Banking Conference*. <https://doi.org/10.2139/ssrn.1011112>
6. Dimitriadis, S., & Kyrezis, N. (2010). Linking trust to use intention for technology-enabled bank channels: The role of trusting intentions. *Psychology and Marketing*, 27(8), 799–820. <https://doi.org/10.1002/mar.20358>
7. Xu, Q. (2010). *Identifying diverse usage behaviours of smartphone*.
8. Wac, K., Ickin, S., & Hong, J.H. (2011). *Studying the experience of mobile applications used in different contexts of daily life* (ACM 978-1-4503-0800-7/11/08).
9. Raza, H., & Azeem, M. (2011). Customer satisfaction and awareness about Islamic banking system. *Journal of Business and Management*, 5(3), 89–97.
10. Ahmad, A. M. K. (2011) The Impact of Stakeholders on Health Services Development: An Empirical Investigation on the Surgical Department at King Fahd General Hospital, Saudi Arabia *International Journal of Marketing Studies*, 9(1). <https://doi.org/10.5539/ijms.v9n1p129> ISSN. (Print) (pp. 1918–719X).
11. Youngmi beek. (2012). *Analysis of users attitude towards apps, intention to use and continual consuming intention focused on mobile commerce*” <https://doi.org/10.5392/IJOC>

12. Seok Kang. (2014). Factors influencing intention of mobile application use. *Journal of Mobile Communication*. Inderscience Enterprises Ltd, 12(4).
13. Ahmed, S., Abdullah, Z., & Rajesh Plait, R. (2015). A study of mobile application usage in Bangladesh. *SSRG-IJCSE*, 2 Issue.
14. Punjakunaporn, T. (2015). *Factors influencing official mobile application purchasing intention in Bangkok*.
15. Roy, S. K., Balaji, M. S., Kesharwani, A., & Sekhon, H. (2017). Predicting Internet banking adoption in India: A perceived risk perspective. *Journal of Strategic Marketing*, 25(5–6), 418–438. <https://doi.org/10.1080/0965254X.2016.1148771>
16. Prakash, A., & Malik, G. (2008). Empirical study of Internet banking in India. *Curie Journal*, 1(3).
17. Singhal, D., & Padhmanabhan, V. (2009). A study on customer perception towards Internet banking: Identifying major contributing factors. *Journal of Nepalese Business Studies*, 5(1), 101–111. <https://doi.org/10.3126/jnbs.v5i1.2088>
18. Ghazizadeh, S. (2012). *Acceptance Theory on Mobile Services and Applications' Unit (IT)*. University of Applied Sciences.
19. S. K. Kaushal, Rakesh Kumar. (2012) Consumers, reaction towards smart phones: A study of students of university of Lucknow, India. New Delhi. (BVIMSR'S) Journal of Management Research, 1(2).
20. Saibaba, S., & Murthy, T. N. (2013). Factors influencing the behavioural intention to adopt Internet banking: An empirical study in India. *Researchers World*, 4(1), 77.
21. Mobile Behaviour Report (2014). Combining mobile device tracking and consumer survey data to build a powerful mobile strategy, <http://salesforce.com/marketing cloud>.
22. Koti, K. (2016), Customer awareness and adaptability towards internet banking: A study of Indian banking industry. *International Journal of Humanities and Social Science Research* ISSN: 2455-2070, 2(8, August); Page No, 63–67.

23. Abhishek, S., Rao, K. P., Suryamani, & Rituraj. (2017). Banking users' adoption of E-banking in Bihar. *Journal of Internet Banking and Commerce*, 22(1, April).
24. A publication of Apptentive The guide to customer retention for mobile apps: are you asking the right questions to improve your mobile customer retention. (2018). <http://www.apptentive.com>
25. Singh, R. R. et al. (2019). Interaction between online banking and its impact on financial performance of banking sector: Evidence from Indian Public Sector banks. *International Journal of Recent Technology and Engineering*, 8(2). ISSN: 2277-3878, 836–839.
26. Venkatesh, V., & Bala, H. (2008). Technology acceptance model and a research agenda on interventions. *Decision Sciences*, 39(2), 273–315. <https://doi.org/10.1111/j.1540-5915.2008.00192.x>
27. Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(2), 544–564. <https://doi.org/10.1016/j.dss.2007.07.001>
28. Mahmoud Al-jazzazi, A., & Sultan, P. (2014). Banking service quality in the Middle Eastern countries. *International Journal of Bank Marketing*, 32(7), 688–700. <https://doi.org/10.1108/IJBM-09-2013-0094>
29. Unal, P., Temize, T. T., & Eren, P. E. (2014). *Informative Institute*. METU, (BCSS).
30. Hassan, M., Kouser, R., Abbas, S. S., & Azeem, M. (2014). Consumer attitudes and intentions to adopt smartphone apps: Case of business students. *Pakistan Journal of Commerce and Social Sciences* (Vol. 8. (3), 763–779).
31. Nielson. (2014). *Mobile App. Marketing Insights* (DOI: 10.58517/ In: ijitcs.2014).
32. Vinoth, S., & Rajkumar, R. (2015). Customer adoption of technology based banking services. *Indian Journal of Applied Research*, 5 | Issue : 8, ISSN -2249–555X, pg No 342-345.

33. Krupa, E. (2016), A Study on customer satisfaction towards e- banking services in Coimbatore, Indian Journal of applied research. M and Dr. R. Rajasekaran, Vi(VII), ISSN: 2249-555X No, P. G. 119–122.
34. Sunith, C. K. (2019). Customer satisfaction in E-banking services. *International Journal of Business and Management Invention (IJBMI)* ISSN [Online]. ISSN (print): 2319–801X. <http://www.ijbmi.org>, 8028 p. 2319 || Volume 8 Issue 01 Ver. II.
35. Sathyabama, K. (2019). *A study on Customer Satisfaction towards Internet Banking services in Thoothukudi city. Research gate.*
36. Frei, F. X., Kalakota, R., Leone, A. J., & Marx, L. M. (1999). Process variation as a determinant of bank performance: Evidence from the retail banking study. *Management Science*, 45(9), 1210–1220. <https://doi.org/10.1287/mnsc.45.9.1210>
37. Boss, S., Mc Granahan, D., & Al Mehta. (2000). *McKinsey Quarterly*.
38. Jaruwachirathanakul, B., & Fink, D. (2005). Internet banking adoption strategies for a developing country: The case of Thailand. *Internet Research*, 15(3), 295–311. <https://doi.org/10.1108/10662240510602708>
39. Diniz, E., Porto, R. M., & Adachi, T. (2005). Internet banking in Brazil: Evaluation of functionality, reliability and usability. *Electronic Journal of Information Systems Evaluation*, 8(1), 41–50.
40. Dospineseu, O., & Rusu, D. (2005). The adoption of electronic banking services in developing countries-The Romanian Case. *Computer World Romania*, vol.no.9, 268.
41. Awamleh, R., & Fernandes, C. (2005). Internet Banking: An empirical investigation into the extent of adoption by banks and the determinants of customer satisfaction in the United Arab Emirates. *Journal of Internet Banking and Commerce*, 10(1).
42. Floh, A., & Treiblmaier, H. (2006). *What keeps the e-banking customer loyal? A multigroup analysis of the moderating role of consumer characteristics on e-loyalty in the financial service industry. A Multigroup Analysis of the moderating Role of consumer Characteristics on E-loyalty in the Financial Service Industry. (March 26, 2006).*

43. Yoon, C. (2010). Antecedents of customer satisfaction with online banking in China: The effects of experience. *Computers in Human Behavior*, 26(6), 1296–1304. <https://doi.org/10.1016/j.chb.2010.04.001>
44. Alsajjan, B., & Dennis, C. (2010). Internet banking acceptance examination. *Journal of Business Research*, 63(9), 957–963.
45. Flood, D., Harrison, R., Iacob, C., & Duce, D. (2011). *Evaluating mobile applications: A spread sheet case study @brookes.ac.uk*.
46. Banda, L. S. (2011). *What are the main determinants for the attitude to use mobile phone application in Suriname* (MBA)-(MSM)-FHR Lim A Po Institute.
47. Bowen, K., & Pistilli, M. D. (2012). Student Preferences for mobile app usage. *Educause Centre for Applied Research*.
48. Rakestraw, Rangamohan *versus Ennui*, Kasuganti (2012) Mobile app industry: A case study, *Journal of Business Cases and Applications*.
49. Victoria A. Seitz, Nada M. Aldebasi. (2016). *The effectiveness of branded mobile apps on users' brand attitudes and purchase intentions*. REBS Vol.9 ISS. (1843–). 1 p.p. ISSN, 763x, 141–154”.
50. Flora, H. K., Wang, X., & Chande, S. V. (2014). An investigation on the characteristics of mobile applications: A survey study. *International Journal of Information Technology and Computer Science*, 6(11), (21–27) (DOI: 10.58515/In: ijitcs.2014.11.03), <https://doi.org/10.58515/ijitcs.2014.11.03>
51. Ling, G. M., Fern, Y. S., Boon, L. K., & Huat, T. S. (2016). Understanding customer satisfaction of internet banking: A case study in Malacca. *Procedia Economics and Finance*, 37, 80–85. [https://doi.org/10.1016/S2212-5671\(16\)30096-X](https://doi.org/10.1016/S2212-5671(16)30096-X)
52. *Interpret tap joy company Mobile attitude and segmentation research*. (2017).
53. Subbarao, D. (2009). *Information Technology and Banking- A Contributing Agenda keynote address delivered at the Institute for Development and Research in Banking Technology, Hyderabad*.

54. Kavitha, T. N. R., & Yogeswari, K. (2011) A study on customer attitude towards smartphones with special references to chit-ode, Erode Dist. (ISOR. *JBM*) (e-ISSN: 2278-587X) pp. In. 33–36.
55. Modi, A. G., Patel, K. J., & Patel, K. M. (2013). Acceptance of Internet banking among retail customers: Survey evidence from Ahmedabad region. *IUP Journal of Bank Management*, 12(1), 63–71.
56. Chatterjee, A. (2016). *Factor affecting customer adaptation towards mobile apps in West Bengal*, 5(05) (ISSN, 2394–1537).
57. Hada, B. S. (2020). Impact of Internet banking on the customer satisfaction: Evidence from the Indian Banking Sector. *International Journal of Recent Technology and Engineering* ISSN: 2277-3878, 8(6, March), 3833–3841. <https://doi.org/10.35940/ijrte.F8198.038620>
58. Sathye, M. (1999). Adoption of Internet-banking by Australian customers: An empirical investigation. *International Journal of Bank Marketing*, 17(17), 324–334.
59. Marenzi, O. Celent Communications (2002). <http://www.banknet.com>
60. Neeraja, G. (2005). E-business-trends and issues. *Indian Journal of Marketing*, XXXV, no.7 P.P, 22–24.
61. Choi, H. (2012). *Understanding of building trust model on smartphone application: Focusing on users' motivation* @. [https://doi.org/10.1007/978-94-007-2911-7\\_2](https://doi.org/10.1007/978-94-007-2911-7_2). Springer Science+Business Media BV.
62. Ericsson. (2014). From apps to everyday situations. *An Ericsson Consumer Insight Summary*.
63. Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. *Computers in Human Behavior*, 63, 75–90. <https://doi.org/10.1016/j.chb.2016.05.014>
64. Amin, M. (2016). Internet banking service quality and its implication on e-customer satisfaction and e-customer loyalty. *International Journal of Bank Marketing*, 34(3), 280–306. <https://doi.org/10.1108/IJBM-10-2014-0139>



65. Turben, E., Lee, J., King, D., & Chung, H. M. (2000). *Electronic commerce: A managerial perspective*. Prentice Hall.
66. Aladwani, A. M. (2001). Change management strategies for successful ERP implementation. *Business Process Management Journal*, 7(3), 266–275. <https://doi.org/10.1108/14637150110392764>
67. Rashedul Islam, Md., Rofiqul Islam, Md., & Mazumder, T. A. (2010). *Mobile Applications and its Global Impact, IJET—IJENS*, 10(06).
68. Munusamy, J., Annamalah, S., & Chelliah, S. (2012). Perceived barriers of innovative banking among Malaysian retail banking customers. *Journal of Internet Banking and Commerce*, 17.
69. Nidhi, N. P., & Pankaj, D. (2016). Analysis of usability metrics for mobile applications. *VNSGU-JST*, 5, No.1-pp: 28-52, ISSN: 0975-5446.
70. Merugu, P.G. (2018). Customer satisfaction towards online banking with reference to greater Visakhapatnam city. *International Journal of Management, Technology and Engineering*, 8(XII).
71. Cherukur, R. B. (2020). A study on electronic banking towards customer satisfaction. *Journal of Contemporary Issues in Business and Government*, 26(2), 967–973.
72. Jun, M., & Cai, S. (2001). The key determinants of Internet banking service quality: A content analysis. *International Journal of Bank Marketing*, 19(7), 276–291. <https://doi.org/10.1108/02652320110409825>
73. Sadiq Sohail, M. S., & Shanmugham, B. (2003). E-banking and customer preferences in Malaysia: An empirical investigation. *Information Sciences*, 150(3–4), 207–217. [https://doi.org/10.1016/S0020-0255\(02\)00378-X](https://doi.org/10.1016/S0020-0255(02)00378-X)
74. Casaló, L. V., Flavián, C., & Guinalú, M. (2008). The role of satisfaction and website usability in developing customer loyalty and positive word-of-mouth in the e-banking services. *International Journal of Bank Marketing*, 26(6), 399–417. <https://doi.org/10.1108/02652320810902433>

75. Al-Jabri, I., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. *Journal of Electronic Commerce Research*, 13, 379–391.
76. Potgieter, A. (2015). The mobile application preferences of UG university students: A longitudinal study. *South African Journal of Information Management*, 17(1), Art.3650.
77. *Global study Mobile applications: what the consumers really need and want a comparative study of mobile application and mobile websites.* (2016).
78. Farooqi, R. (2017). Impact of Internet banking service quality on customer satisfaction. *Journal of Internet Banking and Commerce*, 22, 1–17.
79. Shatat, A. (2017). Journal of Internet Banking and Commerce Special Issue: Global Strategies in Banking and Finance. Dudin factors affecting the adoption and usage of online services in Oman N. Mihail (Ed.), 22.
80. Unnithan, C.R., & Swatman, P., (2001) Online Banking Adaptation and Dot. Com Viability : A Comparison of Australian and Indian Experiences in the Banking Sector, School of Management Information System, Deakin University, No. 14.
81. Hardeep Singh Chawla & Manminder Singh Saluja, (2012). A study on adoption of internet banking among students in Indore, *International Journal of Research in Computer Application and Management*, Vol.2 No.10: pp 117-123.
82. Karamjit Kaur & Rajnessh, (2014). Electronic Banking in India : Innovations, Challenges and Opportunities, *International Journal of Management and Commerce Innovations*, Vol.2, Issue 1, pp. 86 – 93, April 2014 – September 2014.
83. Joseph, M., McClure, C., & Joseph, B. (1999). Service quality in the banking sector: The impact of technology on service delivery. *International Journal of Bank Marketing*, 17(4), 182–193. <https://doi.org/10.1108/02652329910278879>
84. Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnla, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14(3), 224–235. <https://doi.org/10.1108/10662240410542652>

85. Lai, V. S., & Li, H. (2005). Technology acceptance model for internet banking: An invariance analysis. *Information and Management*, 42(2), 373–386. <https://doi.org/10.1016/j.im.2004.01.007>
86. Lee, E.-J., Kwon, K.-N., & Schumann, D. W. (2005). Segmenting the non-adopter category in the diffusion of internet banking. In *International Journal of Bank Marketing*, 23(5), 414–437. <https://doi.org/10.1108/02652320510612483>
87. Amin, H. (2007). Internet banking adoption among young intellectuals. *Journal of Internet Banking and Commerce*, 12(3).
88. Jahangir, N., & Begum, N. (2008). The role of perceived usefulness, perceived ease of use, security and privacy, and customer attitude to engender customer adaptation in the context of electronic banking. *African Journal of Business Management*, 2(2), 032–040.
89. Nor, K. M., & Pearson, J. M. (2008). The influence of trust on internet banking acceptance. *Journal of Internet Banking and Commerce*, 2007.
90. Al-Somali, S.A., Gholami, R., & Clegg, B. (2009). *An Investigation into the Acceptance of Online Banking in Saudi Arabia*, in: *Technovation*, 29(2), 130–141.
91. Aldás-Manzano, J., Ruiz-Mafé, C., & Sanz-Blas, S. (2009). Exploring individual personality factors as drivers of M- shopping acceptance. *Industrial Management and Data Systems*, 109(6), 739–757. <https://doi.org/10.1108/02635570910968018>
92. Rocker, C. (2009). Perceived usefulness and Perceived Ease-of-use of Ambient Intelligence Applications in Office Environments. In M. Kuroso (Ed.), *Human centred design, HCII 2009, LNCS, 5619* (pp. 1052–1061). Springer Verlag.
93. Ayo, C., Adewoye, O., & Oni, A. (2010). The state of e-banking implementation in nigeriae: A post-consolidation. *Journal of Emerging Trends in Economics and Management Sciences*, 1, 37–45.
94. Abushanab, E., Pearson, J. M., & Setterstrom, A. J. (2010). Internet banking and customers' acceptance in Jordan: The Unified Model's perspective. *Communications of the Association for Information Systems*, 26(1), 23. <https://doi.org/10.17705/1CAIS.02623>

95. Yee-Loong Chong, A., Ooi, K., Lin, B., & Tan, B. (2010). Online banking adoption: An empirical analysis. *International Journal of Bank Marketing*, 28(4), 267–287. <https://doi.org/10.1108/02652321011054963>
96. Yee, B. Y., & Faziharudean, T. M. (2010). Factors affecting customer loyalty of using Internet banking in Malaysia. *Journal of Electronic Banking Systems*, 21, 1–22. <https://doi.org/10.5171/2010.592297>
97. Verkasalo, H., López-Nicolás, C., Molina-Castillo, F. J., & Bouwman, H. (2010). Analysis of users and non-users of smartphone applications. *Telematics and Informatics*, 27(3), (242–255). <https://doi.org/10.1016/j.tele.2009.11.001>
98. Susanne Chong J. B. Niklas, Stefan Stronmheier (2011) Exploring the impact of usefulness enjoyment on mobile service acceptance: A comparative study, Unpublished journal “Proceedings of the 44<sup>th</sup> Hawaii International Conference on System Sciences.
99. Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption. *Information and Management*, 48(1), 1–8. <https://doi.org/10.1016/j.im.2010.09.001>
100. Giovanis, A. N., Binioris, S., & Polychronopoulos, G. (2012). An extension of TAM model with IDT and security/privacy risk in the adoption of internet banking services in Greece. *EuroMed Journal of Business*, 7(1), 24–53. <https://doi.org/10.1108/14502191211225365>
101. Ohk, Kyungyoung. Seung-Bae Park, Jae-won Hong. (2015). *The influence of perceived usefulness, perceived ease of use, interactivity and ease of navigation on satisfaction in mobile application* (ASTL Vol.84, pp.88-92).
102. Munir, M. M. M., & Rahman, M. (2015). E-banking service quality and customer satisfaction of a state owned schedule bank of Bangladesh. *Journal of Internet Banking and Commerce*.
103. Min-Jhin, C., Shiu-Wan, H., & Chen, P.-W. (2016). *The adoption intentions of mobile application* (IEEE-ICIS 978-1-3) Okayama. Japan.

104. Farooqi, R. (2017). Impact of Internet banking service quality on customer satisfaction. *Journal of Internet Banking and Commerce*, 22, 1–17.
105. Rahi, S., Abd Ghani, Dr M., & Alnaser, F. M. I. (2017). The influence of E-customer services and perceived value on brand loyalty of banks and Internet banking adoption: A structural equation model (SEM). *Journal of Internet Banking and Commerce*, 22(1, April).
106. Me, A. (2017). Empirical analysis of retail customers' adoption of Internet banking services in Nigeria. *Journal of Internet Banking and Commerce*, 22(1, April).
107. Afshan, S., Sharif, A., Waseem, N., & Frooghi, R. (2018). Internet banking in Pakistan: An extended technology acceptance perspective. *International Journal of Business Information Systems*, 27(3), 383–410. <https://doi.org/10.1504/IJBIS.2018.089863>