CHAPTER 8
CONCLUSIONS, IMPLICATIONS AND FUTURE DIRECTION OF RESEARCH

Technology adoption decision by the banking customers plays crucial role in the success of technology as well as in enhancing customer value among customers. Considering this, numerous research attempts have been made by the researchers in different parts of the world at different points of time. However, the research of such kind have been found scarce with reference to banking customers in India. Also, the available limited research with reference to the banking customers in India has been found to be either region or perspective-specific. To contemplate this, the present research work has been carried out to analyze the dynamics of technology adoption decision of the banking customers with reference to banking sector in India. Accordingly, the present part of the study has been devoted to the conclusions and the main findings followed by theoretical as well as policy implications resulting from the study. For serving this purpose, the present chapter has been divided into three sections. Wherein, the section I dealt with summary and conclusions emerging out of the present study. While, the implications emanating from the forgoing analysis, have been presented in the section II. Thereafter, the direction of the future research is discussed in the section III.

Section I

8.1 Summary and Conclusions
The available research in this field indicates that the phenomenon of customer value and technology adoption has been hardly studied in its entirety and comprehensively with reference to banking customers in India, though the concept has received substantial acknowledgement from distinct researchers. Accordingly, the present research work has been planned to reduce this gap and made an endeavor to explore the unknown or less explored areas of technology adoption and various other facets associated with it in case of banking customers in India.
8.1.1 Objectives of the Study and Research Methodology

The present study attempts to get answers of the following research questions associated with customer value and dynamism of technology adoption phenomenon of the customers.

a) Which personal traits play most and least influential role in determining the technology adoption propensity of the customers?

b) What are the factors that shape the behavioural intentions of the customers towards the adoption of latest banking technological developments?

c) Which factors affect customer value perception with reference to the latest banking technological developments?

d) What is the adoption pattern of different latest banking technologies adopted by the banking customers?

e) Which factors contribute towards varied level of technology adoption propensity of the customers?

In view of the above research questions, the present study has been framed to:

a) Develop an index depicting the propensity of the customers towards the adoption of latest technologies;

b) Identify impact of technology readiness on customer value creation;

c) Develop an integrated model of technology adoption for the banking customers;

d) Recommend various suggestions to banks for enhancing technology readiness and customer value.

In order to commensurate with the objectives of the study, an empirical case focused on analyzing customer value and its relationship with technology adoption dynamics of the banking customers has been prepared. Accordingly, a well structured pretested comprehensive questionnaire has been developed after extensive review of the existing literature pertaining to the dynamics of technology adoption. Since customers are the focal points of the study, primary data have been collected from the banking customers residing at 12 different cities in India. Accordingly, the structured questionnaire has been distributed to 1320 respondents from 12 different cities, who were contacted by visiting different branches of commercial banks during the period between November, 2013 to May, 2014. While selecting commercial banks, efforts have been made to cover the
branches of all the commercial banks operating in India. Besides, selection of the branches as well as customers was based on the convenience sampling approach. Further out of the total of 1320 responses, 119 responses have been discarded owing to issues, such as, incomplete responses, missing responses, etc. thereby, reducing the size of usable data to 1201 responses for the further analysis.

Based on the review of the literature, various facets underlying the dynamics of technology adoption have been taken for analyzing the factors that affect value perception of the customers regarding the latest banking technological developments. The facets include personal traits (optimism, innovativeness, self-efficacy, habit, etc.); technology attributes (perceived usefulness and perceived ease of use); facilitating conditions; socio-economic characteristics of the customers (age, family income and educational qualification). Further, the constructs, namely, attitude and behavioural intentions have been taken to analyze decision of the customers towards the adoption of the technology since the objective data pertaining to the usage of technology were not accessible.

Moreover, responses of the banking customers have been analyzed by employing various statistical tools including Exploratory Factor Analysis, Confirmatory Factor Analysis, Structural Equation Modeling, Multiordered Logit Model, Chi-Square, One Way Analysis of Variance apart from descriptive statistics.

8.1.2 Major Findings of the Study
The present study has developed an index named as Technology Adoption Index highlighting personal disposition of the customers towards technology adoption. The exploratory factor analysis based index has unveiled significant role of seven personal traits, namely, optimism, innovativeness, self-efficacy, social influence, risk taking propensity, habit and psychological resilience while manifesting personal disposition of the customers towards technology adoption. Among these personal traits, optimism has found to play most influential role in the personal disposition of the customers followed by self-efficacy, social influence, innovativeness, risk taking propensity and habit. Whereas, psychological resilience has been identified to exhibit least influential role in shaping the personal disposition of the customers towards the adoption of the new and improved technologies. The results of Technology Adoption index uphold the earlier
research findings, wherein, these seven personal traits have either been explored to play significant role in shaping the technology readiness of the customers towards technology adoption or exhibit significant impact on the technology adoption decision of the customers.

The present study has also aimed at analyzing customer value and impact of technology adoption behaviour of the customers on their value perception regarding the latest banking technological developments. The same has been depicted through the development of Integrated Technology Adoption model by employing structural equation modeling approach. The results of the model unveil strongest contribution of behavioural intentions of the customers towards the adoption of latest banking technological developments in shaping the value perception of the customers with reference to the latest banking technological developments. Besides, perceived usefulness, perceived ease of use and personal disposition of the customers towards technology adoption have also been explored to exhibit statistically significant impact on the value perception of the customers regarding the latest banking technological developments. Not only direct, personal disposition, perceived usefulness and perceived ease of use have also been explored to cause significant indirect impact on the value perception of the customers regarding the latest banking technological developments.

Further, the Integrated Technology Adoption model has highlighted personal disposition of the customers towards technology adoption as the strongest predictor of their behavioural intentions towards technology adoption followed by their perception regarding usefulness and ease of use involved in operating the latest banking technological developments. Further, personal disposition, perceived usefulness and perceived ease of use are also found to cause statistically significant indirect impact on behavioural intentions of the banking customers towards the adoption of the latest banking technological developments.

Also, personal disposition of the customers towards technology adoption has been found to cause statistically significant impact on their perception regarding usefulness and ease of use involved in operating the latest banking technological developments. Further, the socio-economic characteristics of the customers, namely, age, family income
(monthly) and qualification play statistically significant role in shaping the personal disposition of the customers towards the technology adoption. Among these characteristics, family income has emerged out to be the relatively most influential positive determinant of the personal disposition of the customers. This indicates that the tendency of the customers to adopt technology enhances with the augmentation in their income level. Likewise, it has also been found that the customers with higher educational qualification have more favourable personal disposition towards the adoption of the technology. While, the impact of age on the personal disposition of the customers has been found to be negative but significant, thereby indicating that increase in the age of the customers reduce their personal disposition towards the adoption of the technology.

While exploring relationship between various facets related with the phenomenon of technology adoption, the Integrated Technology Adoption model has also unveiled that the presence of supporting conditions facilitate customers in operating the technology which, in turn, makes the use of the technology easy for the customers. Also, perception of the customers, regarding the ease with which the latest banking technological developments can be operated, has found to cause statistically significant and positive impact on their perception regarding the usefulness of the technology in serving their banking needs. Adding more, attitude of the customers towards the adoption of the technology has also found to be determined by their personal disposition towards technology adoption and the ease with which the latest banking technological developments can be operated. While perceived usefulness and facilitating conditions have shown statistically significant indirect impact on the attitude of the customers towards the adoption of the latest banking technological developments.

Further, the present study has also attempted to explore the pattern and usage of latest banking technological developments from micro-perspective. In this regards, the results have shown that the sampled banking customers in India are utilizing three kinds of the latest banking technological developments, namely, ATM, internet banking and mobile banking. Amongst these three technologies, ATMs have been uncovered as the most extensively and regularly utilized banking technology followed by internet banking. Whereas, use of mobile banking services has not only been found to be low among the
sampled banking customers but also irregular among majority of the respective users. It has also been found that majority of the sampled respondents (using either of the three banking technologies) hold multiple bank accounts owing to lack of anywhere presence of single bank and inability of single bank to provide all the latest banking technological developments to the customers for carrying out their banking activities.

While exploring the purpose of using the three aforesaid latest banking technological developments, it has been found that the said technologies are utilized for the purpose of balance enquiry, bill payment, shopping and money transfer. However, an outlook to the descriptive statistics in this regards has unveiled that broadly all the three technologies (more specifically MB) have not been fully utilized for all the intended purposes. Further, the results have also depicted that ATMs and internet banking services are being rated relatively more effective on the five dimensions of effectiveness, namely, accessibility, economical, time flexible, safety and security, and customization than the mobile banking services.

Further, an attempt has also been made to explore reasons for difference in the usage pattern of different technological developments. Accordingly, the results of hypothesis testing have stated that the use of internet banking and mobile banking services is regular for the purpose of bill payment and shopping. While, the usage pattern of both the technologies is found to be irregular for the purpose of balance enquiry. Also, the use of internet banking for the purpose of money transfer has been found to be irregular. While, the usage frequency of mobile banking has failed to exhibit statistically significant difference on account of the purpose of money transfer.

The difference in the usage pattern of internet banking and mobile banking services has also found to be statistically significant on account of technology adoption facets, namely, personal disposition of the customers towards technology adoption, their belief in usefulness and ease of use of the latest banking technological developments. Further, the results also unveiled that the use of internet banking services is regular in case the customers are being provided with requisite support that facilitate them while operating the technology. Whereas, the usage pattern of MB services has not been found to differ statistically based on the presence of facilitating conditions.
Adding more, the study also depict that the usage of mobile banking services is regular in case the customers rate the said services effective on all the five dimensions of effectiveness (i.e., accessibility, economical time flexibility, safety & security and customization). Whereas, the usage of internet banking services has been found to be regular if the said services are being rated relatively more effective on four out of five dimensions of effectiveness (economical time flexibility, safety & security and customization). Moreover, usage of internet banking services have also found to be regular in case the customers evaluate the latest banking technological developments high on the value dimensions, namely, functional value, economic value and emotional value. Conversely, the usage pattern of mobile banking is found to be regular in case the users believe that the use of the latest banking technological developments enhances their social image in the society. Besides, attitude of the customers towards the adoption of latest banking technological developments has found to cause statistically insignificant difference in the usage pattern of both internet banking and mobile banking.

Widening the insight into the phenomenon of technology adoption among the banking customers, the present study has also made an attempt to explore the factors that affect the technology adoption propensity of the customers. Since such kind of attempt is first in its kind to explore the determinants of varied level of technology adoption propensity of the customers, there exist lack of sufficient empirical evidences depicting the plausible factors that may affect the same. Thus, various technology adoption facets found to play significant role in the technology adoption decision of the customers have been considered in order to explore if these facets affect the tendency of the customers towards the adoption of the technology also. For serving the purpose, Technology Adoption Index scores have been considered for segregating the customers into categories depicting distinct level of technology adoption propensity of the customers. Since the said categorization of the customers has been done by employing quartile-based segmentation approach, multiordered logit regression approach has been employed to explore the determinants of varied level of technology adoption propensity of the customers.

Accordingly, the results have depicted that the technology adoption propensity of the customers is determined by perceived usefulness, facilitating conditions, behavioural
intentions, attitude, age of the customers and their family income. Specifically, it has been found that the tendency of the customers towards technology adoption enhances as the customers started perceiving technology useful; and develops positive attitude and favourable intentions towards the adoption of the technology. Further, the technology adoption propensity of the customers has also been found to enhance with increase in their family income but the same has been found to decrease as the customers progresses in age. Adding more to the point, the value dimensions, namely, economical value, emotional value and social value also found to cause statistically significant impact on the technology adoption propensity of the customers. This implicates that the customers who derive maximum economical, emotional and social utility from the use of the latest banking technological developments have enhanced technology adoption propensity.

Section II

8.2 Implications

The significance of the study is to suggest policy implications to the banks that will facilitate banks in leveraging upon the benefits of the technology. Accordingly, the present section entails the implications emanating from the forgoing analysis.

8.2.1 Theoretical Implications

I. One of the significant contributions of the present research work is the development of an index that measure technology adoption propensity of the customers in Indian context. The development of Technology Adoption Index has provided a measurement tool that can be used to identify technology adoption propensity of the customers more robustly. It has facilitated in categorizing customers who will readily embrace new and improved technologies and the other category which will show reluctance while adopting the technology. Besides, the Technology Adoption Index has also facilitated in identifying the extent to which different personal traits manifest the personal disposition of the customers towards technology adoption. Indeed, the said index will also enable banks to explore the traits which play most/least influential role in shaping the technology adoption propensity of the customers.
II. Customer value perception and its relationship with technology adoption decision of the customers, so far (to the best of knowledge), have not been studied from different perspectives especially in Indian context. The attempt of such kind has put the efforts to integrate different taxonomies of customer value as well as technology adoption phenomenon among the customers. This integration may be helpful in understanding technology adoption dynamics of the banking customers in a more parsimonious way. Indeed, the analysis of such kind constitutes keystone to continue with the study focusing on the relationship between customer value and technology adoption dynamics from applied perspective.

III. The present research attempt also tenders a wider promenade in the area of customer value as well as technology adoption behaviour of the banking customers in Indian context. The present study contributes to the ongoing discussion about the explanation of dynamism of technology adoption with the better description of antecedents of technology adoption both at the aggregate and disaggregates level. The probable antecedents sprung from the previous literature have added to the pool of the knowledge with some validations from the existing results. This way, the findings of the present study offers a general and inductive interpretation of technology adoption dynamics by including all these variables together in a more comprehensive and in-depth manner.

8.2.2 Policy Implications
Some of the policy implications stemming from the findings of the present research work are discussed as follows.

I. The present composition reveals behavioural intentions of the customers as the strongest determinant of their value perception, thereby, indicating the need to explore the factors that enhances the willingness of the customers towards technology adoption, i.e., their behavioural intentions. Addressing this, the results of the present study have highlighted personal disposition of the customers towards technology adoption as the strongest determinant of their intentions towards technology adoption. Also, the direct significant role of personal disposition in shaping the value perception of the customers reinforces the decision to focus on
personal disposition of the customers. In view of that, some of the suggestions to the bank, for enhancing the personal disposition of the customers, are discussed in the forthcoming paragraphs.

a. Optimism has been explored as the most influential personal trait manifesting personal disposition of the customers. Therefore, banks are suggested to focus on adopting the measures that enhances optimism level of the customers. One of the implications in this regard is that banks should provide more customized solutions to the customers, such as, changing passwords, adding third party for banking transactions, getting transaction rights, viewing rights, etc. without visiting banks. Doing so will also enhance the effectiveness of the banking technologies.

b. Further, customers should be educated regarding the ways through which threats like hacking and phishing can be avoided in order make customers secure against the risks involved in operating the technology. This can be done by providing customers with the list of do’s and don’ts that will enable customers in concealing their banking credentials from others and operating the technology successfully. This will reduce risk involved in operating the technology, thereby, enhancing the personal disposition of the customers.

c. Further, banks can also offer risk insurance to the customers against the losses which are beyond the control of the customers. Doing so will enable banks in building favourable impression of the technology into the minds of the customers. This will, on one side, develops positive belief regarding the technology and on the other side, provides cushion against risk involved in operating the technology.

d. Further, banks can explore renowned persons at local as well as national level who may advocate the use of the latest banking technological developments. Such persons should be asked to narrate the benefits of the latest banking technologies through different means, such as, newspaper blogs, internet blogs, etc. Moreover, sharing practical experiences of such
persons pertaining to the use of the latest banking technological developments may enhance the personal disposition of the customer by utilizing the concept of social influence.

II. The study also establishes that for shaping the value perception of the customers towards the latest banking technological developments and their behavioral intentions, perceived usefulness and perceived ease of use play significant direct as well as indirect role. This implicates the need to focus on perceived usefulness as well as perceived ease of use of the technology. Accordingly, some of the suggestions in this regards are narrated in the forthcoming paragraphs.

a. Banks should focus on explaining benefits of the latest technologies to the customers in serving their banking needs. This can be done through various methods, such as, organizing camps, etc. at various local places, playing short films, road shows, etc.

b. Indeed, while targeting usefulness of the latest banking technologies, benefits of the latest technologies over and above the traditional technologies should be highlighted. This will enable customers in making comparisons between traditional as well as latest banking technologies and help them to explore the competence of the latest banking technologies in serving their needs in much improved manner.

c. Further, efforts should also be made to enhance perceived ease of use involved in operating the technology. In view of that, banks can provide hands on training to the customers regarding the usage of the latest banking technological developments. Indeed, the training should be blend of classroom as well as practical training, wherein, primarily, the usage procedure of the latest banking technological developments can be explained and then, the customers will be allowed to operate the technology under the supervision of bank’s personnel. Thereafter, customers may be allowed to operate technology on their own in order to explore the cognizance of the customers with the usage procedure of the latest banking technologies.
d. Moreover, refresher demonstration sessions should be organized by the banks from time to time in order to explore issues/apprehensions of the customers pertaining to the usage of the latest banking technological developments.

e. Adding more, banks should focus on through-the-line marketing concept, wherein, the customers will not only be introduced with the latest technologies offered by the banks but they will also be educated regarding the usage procedure of such technologies and the modifications made in the features of the technologies (if any).

f. Besides, measures like use of suggestion/complaint boxes can also be utilized in order to explore issues of the customers related with the usage of the latest banking technological developments. Doing so will, further, enable banks in devising more steps for enhancing the ease of use of the latest banking technological developments as well as effectiveness of the technology.

III. Adding more, the present composition has also highlighted significant role of facilitating conditions on the behavioural intentions of the customers. This implicates the need to focus on facilitating conditions for enhancing the intentions of the customers towards technology adoption with the ultimate aim to enhance their value perception regarding the technology. Accordingly, some of the suggestions to the banks in this regards are discussed in the forth coming paragraphs.

a. Banks should provide manuals written in simple language providing stepwise instruction regarding the usage of the technology. Indeed, manuals can be printed in regional languages in order to facilitate customers while operating the technology. Moreover, attempts should be made to include the solution of some common problems in the manuals.

b. Further, audio-visual demonstrations regarding the usage of different banking technologies can also be introduced by the banks for making the use of the technology much easier for the customers. Banks should also
focus on enhancing efficiency of technical support lines in order to serve customers in much better and efficient manner.

c. Adding more to the point, banks may also start built-in-assistance, wherein, the customers will be guided or cautioned, while operating the technology, against some common error/problems. Doing so will also enable the customers in operating the technology without much hassles.

d. Besides, bank may also facilitate customers by providing them assistance of the bank’s personnel (in case of any issue) in the same way as done by other service organizations. Explicitly, banks may also provide customers with field grievance officer whose main task is to address the issues of the customers pertaining to the usage of the latest banking technological developments.

IV. The present composition has also unveiled determinants of the technology adoption propensity of the banking customers. The analysis of such kind has supported significant role of various facets, namely, perceived usefulness, attitude towards technology adoption, behavioural intentions towards technology adoption, facilitating conditions in shaping the tendency of the customers towards technology adoption. Such analysis has confirmed imperative role of these facets not only on the decision of the customers to adopt the technology but also in deciding the propensity of the customers towards technology adoption.

V. Besides, the results of the present research work have highlighted imperative role of socio-economic characteristics of the customers in the dynamics of technology adoption. These results will enable banks in the preliminary scrutinization of the customers for the reaction towards technology. Specifically, an outlook to the age, family income and educational qualification of the customers will enable banks in exploring their personal disposition towards technology adoption. Not only this, age and family income will also enable banks in exploring the technology adoption propensity of the customers.

VI. Apart from this, banks should also focus on enhancing effectiveness of the latest banking technological developments. In this regards, one of the implications can
be that banks should adopt multi-layer security codes or procedures for enhancing the safety & security involved in operating the technology. But this should be done keeping in mind the time involved in carrying out the banking activities through the multi-layered secured technologies. Further, banks should devise ways through which source of hacking or phishing can be detected with the view to explore the defaulter, thereby, ensuring more safety and security to the customers.

VII. Further, attempts can also be made to avoid problems like network congestion through ways, such as, widening bandwidth of the networks, providing services through multiple domains, etc. Although such kind of attempts have been initiated recently with reference to the internet banking services, yet it is required by the banks to continuously engage in such activities owing to the increasing customer base of the internet banking users.

VIII. Also, it has been found that the mobile banking services are being rated comparatively less effective on the economical dimension than the ATM and internet banking services. Therefore, it is required by the banks to focus on providing cost-effective mobile banking services. In this regards, banks may also corroborate with the handset providers or mobile network providers in order to provide more economical method of using MB services for serving their banking needs.

IX. Further, banks should also ensure that the banking services as well as different technologies offered by the banks can be accessed by the customers from different locations in order to retain the existing customers as well as attracting new customers.

Section III

8.3 Future Direction of Research

Technology adoption phenomenon of the customers enable banks to leverage upon the benefits of competitive advantage by enhancing customer value. This underlines the importance of exploring the technology adoption phenomenon among the banking customers. In future, use of Technology Adoption Index and the Integrated Technology
Adoption model can be extended in assessing the technology adoption propensity of the users in mandatory settings also. Further, the study can also be planned to extend the Integrated Technology Adoption model with reference to specific banking technologies or with reference to other technologies, such as, e-learning, e-commerce, etc. for analyzing the adoption phenomenon of such technologies among the customers. Furthermore, Technology Adoption Index as well as Integrated Technology Adoption model can also be extended to diagnose dissimilarities in the technology adoption behaviour of the customers belonging to distinct regions/areas, etc. Also, the impact of time on technology adoption behaviour of the customers and various facets related with it may provide deeper insight into the technology adoption phenomenon of the customers. Adding more, the results of the study can also be validated considering actual usage of the technology as it may add more useful insight into the phenomenon of technology adoption behaviour of the banking customers.