CHAPTER VII

SUMMARY OF FINDINGS AND IMPLICATIONS

This chapter carries a summary of the major findings of the study, theoretical and practical implications of the findings and the limitations. The chapter also contains the areas for further research which may immensely contribute to both theory and practice of Internet Banking.

7.1 The Study in Retrospect

With the advent of Information Technology and its massive application in banking, delivery of banking services has become more electronic and online. The demand for IB is necessitated by the growing e-commerce transactions and the paradigm shift in banking led by technology. From the perspective of both users’ and providers’ of IB, it is cost effective, quick and convenient. IB as a medium of delivering banking services is gaining acceptance from banking customers and is fast catching up in India particularly in Kerala with almost all the banks offering IB services to their customers. The present study was a customer centric study undertaken in the area of self service banking technology using internet viz., Internet Banking. The study aimed to achieve the following objectives.

1. To understand customer awareness and the extent of use of various services in Internet Banking.
2. To identify the reasons which limit the use of Internet Banking.
3. To examine the antecedents of Internet Banking adoption using extended Technology Acceptance Model (TAM) from the Information Technology (IT) literature.
4. To understand the precautions taken by users for safe use of Internet Banking and to assess their exposure to risk of fraud.
5. To study customer awareness and their trust in IB security features adopted by banks.
6. To explore service quality dimensions in Internet Banking and to analyse the effect of these dimensions on customer satisfaction.

7. To explore the problems encountered during the process of service delivery and to analyse the effect of these problems on customer satisfaction.

In accordance with the above objectives, the following hypotheses were formulated and tested.

\( H_{01} \). Internet banking usage does not differ significantly on the basis of user demographics such as gender, age, education, occupation and monthly income.

\( H_{02} \). The reasons that limit the use of IB do not differ significantly across different sectors, usage groups and levels of computer knowledge.

\( H_{03} \). Perceived Ease of Use, Perceived Usefulness and Perceived Risk have no significant effect on adoption of Internet Banking.

\( H_{04} \). Precautions for the safe use of IB do not differ significantly on the basis of gender, age, education, occupation, monthly income, level of computer knowledge, usage groups, volume of transactions and sectors.

\( H_{05} \). Trust in security features does not differ significantly across different sectors, usage groups and levels of computer knowledge.

\( H_{06} \). Service quality dimensions in Internet Banking have no significant effect on customer satisfaction.

\( H_{07} \). Problems encountered during Internet Banking service delivery have no significant effect on customer satisfaction.

### 7.1.1 Methodology

The retail Internet Banking users in the State of Kerala constituted the population of the study. Survey method using a structured questionnaire was used for collecting data from 450 respondents (406 were found useful for final analysis) identified through different stages of selection. Since public sector banks, old private sector banks and new private sector banks have a strong branch network in Kerala, as the first stage of sample selection, it was decided to select banks from all these three sectors. Accordingly, State
bank of India, State Bank of Travancore, Canara Bank and Punjab National Bank were selected from the public sector. Federal Bank and South Indian Bank were selected from the old private sector. HDFC Bank, ICICI Bank and Axis Bank were selected from the new private sector banks. To accommodate geographical importance, as the second stage of sample selection, the State of Kerala was divided into three regions, viz., North Kerala, Central Kerala and South Kerala. One district from each region was selected and accordingly from North Kerala - Kozhikode district, Central Kerala - Ernakulam district and from South Kerala - Thirvananthapuram district. In the third stage of sample selection, respondents were chosen from selected banks and from the three districts of Kerala. The data collected using questionnaire were analyzed using appropriate mathematical and statistical tools like percentage, average, Chi-square test, one sample t-test, independent sample t-test, one way Analysis of Variance (ANOVA), Multi Variate Analysis of Variance (MANOVA), Kruskall Wallis test, Correlation analysis, Factor analysis and Multiple regression.

7.2 Findings of the Study

This section contains the major findings which emerged from the analysis of data collected from the respondents.

7.2.1 Profile of the Sample

Out of 406 respondents, 76 per cent are male and 24 per cent are female. This is in line with the findings of similar studies in India that males form the majority of IB users in India. About 74 per cent of the respondents are below 35 years of age and 26 per cent are above 35 years of age. This indicates that young generations have affinity towards the use of IB. About three fourth (74 per cent) of the total respondents are Post Graduates/Professionals and out of the remaining, 22 per cent are undergraduates and a meager 4 per cent have qualification up to +2/Diploma. This indicates that most of the IB users are well educated banking customers. About 71 per cent of the respondents are employees, 16 per cent are self employed professionals like Chartered Accountants, Cost Accountants, Company Secretaries, Doctors, Lawyers etc, and the rest 13 per cent are
students and businessmen. Majority (66 per cent) of the respondents have monthly income ranging from 15,000 to 45,000. This indicates that customers of high income group generally use IB. To put it succinctly, young males, well educated employees with a moderately high level of monthly income constituted the respondents for this study.

7.2.2 Classification of Respondents

Classification of respondents based on various criteria revealed the following.

Majority (79 per cent) of the respondents have IB experience ranging from one to four years. With regard to IB experience with multiple banks, it was observed that 50 per cent of the respondents have experience with two banks and 18 per cent have with three banks. Classification of respondents on the basis of their working level of computer knowledge indicated that majority (56 per cent) have average level of computer knowledge. Majority (75 per cent) of the respondents consider themselves as ‘technophiles’ and their percentage is more in NPSB followed by OPSB and PSB. IB users with advanced level of computer knowledge are mostly ‘technophiles’. Majority (64 per cent) of the respondents perform IB transactions up to ₹15,000 per month.

7.2.3 User Awareness and Extent of Use of Internet Banking

Users have awareness of the services in IB but they do not use all the services equally. The services with high extent of use are ‘check balances’ (informational) followed by ‘view account statements/transaction history’ (informational), and ‘fund transfer from one account to another’ (transactional). Computer knowledge of IB users is found to influence the use of services in IB like ‘fund transfer from one account to another’, ‘booking for train/bus/flight or movie tickets’, ‘payment of utility bills’, ‘online shopping' and ‘mobile recharging’. IB users with advanced level of computer knowledge mostly use these services more frequently than those with average level of computer knowledge. Classification of IB users into low, medium and high users also revealed that most of the high users have advanced level of computer knowledge. They perform high volume of IB transactions and most of the low users perform low volume of IB transactions. IB usage group is found to have association with years of IB use indicating
that as users get acclimatized with IB environment, they would tend to use IB services more often.

IB usage does not differ significantly on the basis of gender, educational qualification, and monthly income of the respondents. But IB usage differs on the basis of age and occupation. IB users up to 25 years of age, use the services less frequently than those belong to 26 – 35 years of age. IB usage is less among students as compared to business people, employees and self employed professionals.

7.2.4 Reasons which Limit the Use of Internet Banking

The reasons that limit the use of IB are (a) Users feel that all IB services are not equally relevant to them and (b) They feel unsafe to use IB. The reasons do not differ across public sector, old private sector and new private sector banks. However, the reasons do differ across low, medium and high users of IB. Low users perceive ‘risk’ in the use of IB while medium and high users do not. The reasons also differ between IB users with average level of computer knowledge and advanced level of computer knowledge. The former do not feel safe to use IB while the latter differ in their opinion. Though both categories feel that all services in IB are not equally relevant, the perception of the former is stronger than the latter.

7.2.5 Antecedents of Internet Banking Adoption

Analysis on factors influencing the adoption of IB using extended Technology Acceptance Model (TAM) framework unfolds that Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are the push factors and Perceived Risk (PR) is the pull factor on adoption of IB. The push factors have significant positive effect on adoption and the pull factor has significant negative effect on adoption.

7.2.6 Precautions for Safe Use of Internet Banking

It was found that IB users classified on the basis of (a) Gender (b) Age (c) Qualification (d) Occupation (e) Monthly income (f) Level of computer knowledge (g) Usage groups (h) Volume of IB transactions and (i) Sectors of banks, take high
precautions for the safe use of IB. When IB users take high precautions for the safe use of IB, they are less likely to be exposed to the risk of fraud associated with the use of IB. Therefore, it is concluded that IB users’ exposure to risk associated with the use of IB is likely to be less in Kerala. However, item-wise analysis of all the 16 items measuring precautions revealed that they do not take adequate precautions on two measures: (a) Users do not update the web browser (internet explorer etc.) that access IB and (b) Users download free software from internet. This is a matter of concern which requires to be addressed.

Precautions for the safe use of IB do not significantly differ on the basis of gender, age, occupation, monthly income, level of computer knowledge and sector. However, the following groups of IB users take comparatively more precautions.

4. Highly educated IB users when compared to less educated users.
5. Those whose IB usage is high when compared to those whose IB usage is medium and low. As between medium and low users, medium users take more precautions.
6. Those who perform high volume of IB transactions when compared to those who perform low volume of IB transactions.

7.2.7 Security Features in Internet Banking

Majority of the respondents have awareness about various security features except ‘Padlock symbol’ and ‘Address bar turning green’. Comparatively higher percentage of IB users with average level of computer knowledge are unaware of security features such as VeriSign, ‘Padlock symbol’, ‘The letter ‘s’ in the URL’, and ‘Virtual keyboard’ than users with advanced level of computer knowledge. The most trusted security feature amongst IB users is ‘SMS alert’ and IB users with average level of computer knowledge trust more on it than those with advanced level of computer knowledge. Other security features trusted by users in the order of their trust were VeriSign, Automatic lockout on multiple incorrect password entry, ‘The letter ‘s’ in the URL’, Automatic timeout if account not operated for specified time, Mandatory use of special characters in password,
Virtual Keyboard, Sign on password expiry, Padlock symbol and Address bar turning green.

Trust in all security features except “The letter ‘s’ in the URL” does not differ significantly among customers belonging to different banking sectors. It was found that users of old private sector banks trusted more on “The letter ‘s’ in the URL” than users of new private sector banks. Trust in all security features except VeriSign, Padlock symbol and Address bar turning green significantly differ on the basis of level of computer knowledge of users. Users with average level of computer knowledge trusted more on - Sign on password expiry, Automatic lockout, Automatic timeout, Use of special characters, Virtual keyboard and SMS alert, than users with advanced level of computer knowledge. But users with advanced level of computer knowledge trusted more on “The letter ‘s’ in the URL” than users with average level of computer knowledge. Trust in Virtual keyboard, Sign on password expiry, Automatic timeout and Use of special characters significantly differs on the basis of IB usage group. Low users trusted more on Virtual keyboard, Sign on password expiry and Automatic timeout, than medium and high users. But in the case of mandatory use of special characters, low users trusted more on it than high users.

7.2.8 Service Quality and Customer Satisfaction

The service quality dimensions identified through factor analysis were Fulfillment, Security, Reliability, Efficiency, Responsiveness, Website attributes and Privacy. It was found that users have a favourable response on all the measures of customer satisfaction. Significant positive correlations were found between various dimensions of service quality and customer satisfaction. Multiple regression analysis unfolded the effect of service quality dimensions on customer satisfaction. Privacy dimension followed by Responsiveness, Security, Fulfillment and Reliability were found to be predictors of customer satisfaction. However, the effect of Efficiency and Website attribute dimensions on customer satisfaction was not statistically established.
7.2.9 Problems and Customer Satisfaction

The problems encountered during IB service delivery process identified through factor analysis were customer support problems, service problems, web based problems and password problems. The mean of percentage score was highest for web based problems followed by password problems, customer support problems and service problems. Significant negative correlations were found between problems and customer satisfaction. Multiple regression analysis unfolded the effect of problems on customer satisfaction. Customer support problems and web based problems have significant negative effect on customer satisfaction and hence these hinder customer satisfaction. However, the significant negative effect of service problems and password problems on customer satisfaction was not statistically established.

7.3 Theoretical Contributions of the Study

The findings of the study relating to customer awareness, extent of use of various services in IB, reasons which limit the use of IB, precautions taken by users for safe use of IB, customer awareness and their trust in IB security features adopted by banks contribute to the literature by minimizing the paucity of studies in the domain of IB. Internet Banking is a relatively new delivery channel and not many studies have been undertaken in India particularly in Kerala. The present study made use of 16 measures to understand the precautions taken by users for the safe use of IB and 27 measures to identify the problems encountered during IB service delivery. Studies that made use of these measures were hardly found in the literature and it is expected that these measures may provide insights to future researchers for undertaking similar studies in a different context.

For more than two decades since the development of Technology Acceptance Model (TAM), researchers all over the world have been empirically testing TAM in various contexts. The present study empirically validated an extended TAM model with an added construct of ‘Perceived Risk’ for predicting adoption of IB in Kerala. This makes an important theoretical contribution of this study as TAM constructs were found to be applicable in Kerala too. Further, the extended TAM model used in the study can be...
employed for adoption of other online services such as online-shopping or electronic commerce. The negative effect of problems encountered during IB service delivery on customer satisfaction has also been empirically validated in the study. This makes contribution to the literature as previous studies that examined such effect were not found.

7.4 Practical Contributions of the Study

The most important practical contribution of the study is for IB service providers. The findings emerged from the study provide an insight into the perception about IB among users in Kerala and based on the findings, service providers can take appropriate steps to deliver IB services more efficiently and to encourage customers to embrace IB. Based on the findings the following suggestions are made:

1. The top two services availed by IB users are ‘check balances’ followed by ‘view account statements/transaction history’ which are non-transactional (informational) in nature. From the perspective of IB service providers’ these two services do not generate any revenue for them. Therefore banks should encourage their customers to avail IB services which are transactional in nature, for example, fund transfer, booking for train/flight/bus tickets, payment of bills, online shopping etc. This can be achieved by creating confidence in the minds of IB users that it is safe to use IB provided they take the required precautions.

2. Most of the Users with advanced level of computer knowledge use services, such as ‘fund transfer from one account to another’, ‘booking for train/bus/flight or movie tickets’, ‘payment of utility bills’, ‘online shopping’ and ‘mobile recharging’, more frequently than those with average level of computer knowledge. This has managerial implications for banks to better promote IB services among tech savvy banking customers. The potential for IB in Kerala is immense, considering the rising computer literacy and internet penetration levels in homes and offices.
3. The finding that Perceived Ease of Use (PEOU) is a major determinant of customer adoption of IB points to the practical implication that IB software developers should pay attention on making the user interface easier to use. In addition to PEOU, Perceived Usefulness (PU) also has an effect on adoption of IB. This finding refers to the fact that customers use IB for the benefits they get in comparison to other banking delivery channels, especially banking at physical branches. These findings lead to the conclusion that when IB is perceived as easy to use and useful, adoption of IB among customers would be greater. Practical implication of these results is that IB service providers need to highlight the benefits of IB among the customers and also make IB interface simple and easy to use.

4. The finding that Perceived Risk (PR) has negative effect on adoption of IB uncovers the need for banks to reassure their customers that IB is a safe method to do banking transactions provided they take the required precautions. In order to turn around the negative perceptions of the customers that IB is risky to adopt, IB service providers need to convey an effective message to customers that world class inbuilt security features are now used by banks to protect customers from any third party intrusions into their IB account.

5. The study unfolded the urgent necessity for educating all IB users regarding (i) the need for updating the web browser that access IB and (ii) the risk of downloading free software from internet. Therefore, banks should try to create more and more awareness among all IB users about the need to take precautions for the safe use of IB in order to protect their interest.

6. The finding that majority of the respondents are not aware of security features such as ‘Padlock symbol’ and ‘Address bar turning green’ necessitates the need for creating awareness about the importance of these security features. Before entering the user id and password, it is absolutely essential to ensure that the customer is not interacting with a website which is a fake replica of bank’s website. ‘Padlock Symbol’ and ‘Address bar turning green’ are security features
which indicate that the website is safe and legitimate. Therefore it is the need of the hour to create awareness about these security features amongst IB users.

7. The most trusted security feature amongst IB users is ‘SMS alert’. SMS alert keeps the customers updated about what has happened in their account and it is not a risk preventive security feature. Risk preventive security features like ‘Padlock symbol’ and ‘The address bar turning green’ are least trusted by IB users. These findings have managerial implications for banks to take necessary steps to guard IB users against the risk associated with IB. It is essential that IB service providers should educate their customers not only about the significance of risk preventive security features but also about risks of internet banking and the steps the banks are taking to help mitigate those risks. Non awareness of IB security features may limit the amount of banking transactions conducted by IB adopters. Periodic articles in bank newsletters and in email or SMS messages and on bank websites can help increase customer awareness on these important security features.

8. Among the service quality dimensions, Privacy was the one having the strongest impact on customer satisfaction followed by Responsiveness and Security. This finding, combined with the fact that customers perceived the measures of Security and Responsiveness dimensions as the lowest amid the measures of various service quality dimensions, may pose a major threat to the wider embracing of IB in Kerala. Therefore, banks should closely look at how they can improve the perception of IB users regarding the Security and Responsiveness dimensions of service quality.

9. The finding that customer support problem exert comparatively strong negative effect on customer satisfaction than web based problems, cross validates the finding that responsiveness of bank employees is one of the major predictors of customer satisfaction. The essence of this finding is that IB users in Kerala may be satisfied about IB services in general but may not be satisfied about specific dimensions of service quality, for example, responsiveness. In order to maximize customer satisfaction, banks in Kerala should pay high attention to responsiveness.
dimension of service quality so that customer support problems are minimized. To create a highly responsive bank for IB services, a bank should have accessible and responsive employees who can respond quickly and professionally to all the requirements and complaints of customers. Skilful and experienced staff who can also handle problems associated with the use of IB may be devoted for this purpose. In order to provide hands on training to potential IB users on how to use IB, banks may arrange live demos at branch offices when the customers approach the banks for IB facility. Though the website of some of the banks provide demos, demos in the presence of experienced bank staff may be more beneficial from the point of view of customers.

7.5 Limitations of the study

Although the study brought out encouraging and useful findings, it has limitations. The following are the major limitations.

1. The study is restricted to IB services provided by select scheduled commercial banks in Kerala. Other technology enabled (electronic) banking services such as Automated Teller Machine (ATM) services, Mobile banking services etc. are not brought within the purview of the study.
2. The study considered the perceptions of retail banking customers only and the perceptions of wholesale banking customers who use IB were not considered.
3. The study has the limitation of lack of previous empirical studies in two main focus areas viz., precautions taken by IB users for safe use of IB and the problems associated with the use of IB.
4. The validity of the survey findings would have been enriched if the researcher had obtained a sampling frame which contains the list of IB users from banks in order to apply random sampling technique more accurately. Since the banks cited confidentiality for not providing their customer details, the researcher had to get responses from subjects who visited ATM outlets on the days of survey.
5. The study focused on a specific user group, i.e. those user groups who use IB. Therefore, special caution should be taken when extrapolating or generalising the
findings of the study to other user groups, for example, ATM, mobile banking user groups etc. Further research is expected to authenticate the generalisability of the findings of the study to user groups of other banking technologies.

6. The model to predict customer satisfaction included seven dimensions of service quality. It is not practically possible to incorporate all the dimensions in a single study. If few more dimensions were added, the research model could have been more robust.

7. The low R-square reported by the current research to predict adoption of IB represents another limitation. Hence, there is a need to search for additional measures and constructs that will improve predictive power of the model used.

8. The present study was a cross sectional study in which subjects are contacted at a fixed point in time and relevant information is obtained from them. Additional research efforts are needed to evaluate the validity of the findings of this study by conducting a longitudinal study at some point in future.

7.6 Scope for Further Research

Future research may replicate this study with wholesale banking customers to evaluate the validity of the findings of this study. Wholesale banking customers may use IB more frequently and therefore to enquire whether their perceptions are similar to those of retail banking customers would be of interest to future researchers. The research did not examine the relationship between customer satisfaction and customer retention. Future research may aim at examining the relationships among overall internet banking service quality, customer satisfaction and customer retention. These research findings may enlighten IB service providers to increase their profitability by maintaining their existing customer base.

Future research could be directed to find out if there are more dimensions of service quality that affect customer satisfaction in IB. Addition of more dimensions into the model to predict customer satisfaction may enhance the robustness of the model. Future research can also explore if there are any mediating variables that affect the relationship between service quality dimensions and customer satisfaction. With almost
all the banks in India offering IB services, large number of banking customers are shifting to IB and therefore this is an opportune time to do more empirical research investigating the antecedents and consequences of impacting customer expectations and perceptions regarding IB service quality using E-SERVQUAL instrument. Future studies may use a richer set of measures and constructs as predictors to provide better explanatory power for the extended TAM model used in the study to predict adoption of IB. A study among non-users of IB may be undertaken to know their awareness about services in IB, reasons for non-adoption, their perceptions of risk and their intention to use IB.

7.7 Closing Note

The present study was a holistic study from the point of view of IB users’ to understand their perceptions on varied aspects on the use of IB. The study addressed the research questions raised at the beginning of the study and also validated an extended TAM model. The model incorporated both the ‘push’ and ‘pull’ factors on adoption. The findings of the study lead to the conclusion that customers are enlightened on various IB services, security features adopted by banks and they take high precautions for safe banking over internet. However, the study unearthed the necessity for educating customers on the need for updating the web browser that access IB and the risk of downloading free software from internet. The study also brought out the urgent need for creating awareness on the risk preventive security features adopted by banks. Users are satisfied about the quality of IB services and their satisfaction is dependent on various service quality dimensions. Though users face problems, the gravity of problems was found to be less. However, occurrence of problems did have negative effects on customer satisfaction. The study contributes to both theory and practice in the domain of Internet Banking.