CHAPTER 3
THEORETICAL BACKGROUND:
E-BANKING / INTERNET BANKING

3.1 Introduction

The literature relating to various aspects associated with actual adoption and usage of e-banking/internet banking is reviewed in chapter two. A theoretical framework that conceptualizes and links consumer-oriented issues influencing adoption of internet banking is provided in this chapter. Within the Internet banking adoption context, researchers have indicated various determinants or drivers that have had a positive effect on adoption decisions. For example usefulness, compatibility, self-efficacy, relative advantage, visibility and trial ability are a few. On the contrary, lack of user-friendly technology, high initial set-up costs, high security and privacy risk, lack of suitable skills, slow rate of adoption and low usage have been the major factors that have limited banks from widespread implementation of financial services over the Internet.

In addition to the above, it is identified that there is limited information available either on actual adoption or usage rates for India’s Internet banking services and this might be due to limited number of studies carried out in this field. Also most of the studies available under this topic are exploratory studies that evaluated the functionalities of Internet banking services using information from banks’ websites, while the effectiveness of services was judged by collecting information from computer literate university students. Thus there was almost no study conducted to understand what users and non-users perceive about Internet banking services and what are the factors that have influenced
users’ intention. This study proposes to identify factors that influence adoption and use of e-banking/Internet banking services in India. It is being attempted by drawing upon a number of theories that have achieved popularity in the study of technology adoption behaviour.

3.2 Forms of IT Innovations (Electronic Delivery Channels)

Technological innovations have been identified to contribute to the distribution channels of Banks. The electronic delivery channels are collectively referred to as Electronic Banking. Electronic Banking is really not a technology, but an attempt to merge several different technologies. Each of these evolved in different ways, but in recent years different groups and industries have recognized the importance of working together. Bankers now see a kind of evolution in their business, partly, because the world has taken a quantum leap in the use of technologies in the last several years. The various electronic delivery channels are discussed below:

3.2.1 Automated Teller Machines (ATMs)

Rose\(^1\) describes ATMs as follows: “an ATM combines a computer terminal, record-keeping system and cash vault in one unit, permitting customers to enter the bank’s bookkeeping system with a plastic card containing a Personal Identification Number (PIN) or by punching a special code number into the computer terminal linked to the bank’s computerized records, 24 hours a day”. Once access is gained, it offers several retail banking services to customers. They are mostly located outside of banks, and are also found at

airports, malls, and places far away from the home bank of customers. They were introduced first to function as cash dispensing machines. However, due to advancements in technology, ATMs are able to provide a wide range of services, such as making deposits, funds transfer between two or more accounts and bill payments. Banks tend to utilize this electronic banking device, as all others for competitive advantage.

The combined services of both the Automated and human tellers imply more productivity for the bank during banking hours. Also, as it saves customers’ time in service delivery as alternative to queuing in bank halls, customers can invest such time saved in other productive activities. ATMs are a cost-efficient way of yielding higher productivity as they achieve higher productivity per period of time than human tellers (an average of about 6,400 transactions per month for ATMs compared to 4,300 for human tellers). Furthermore, as the ATMs continue when human tellers stop, there is continual productivity for the banks even after banking hours.

3.2.2 Telephone Banking

Tele-banking (telephone banking) can be considered as a form of remote or virtual banking, which is essentially the delivery of branch financial services via telecommunication devices where the bank customers can perform retail banking transactions by dialling a touch-tone telephone or mobile communication unit, which is connected to an automated system of the bank by utilizing Automated Voice Response (AVR) technology”.

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According to Leow,³ tele-banking has numerous benefits for both customers and banks. As far as the customers are concerned, it provides increased convenience, expanded access and significant time saving. On the other hand, from the banks’ perspective, the costs of delivering telephone-based services are substantially lower than those of branch based services. It has almost all the impact on productivity of ATMs, except that it lacks the productivity generated from cash dispensing by the ATMs. For, as a delivery conduit that provides retail banking services even after banking hours (24 hours a day) it accrues continual productivity for the bank. It offers retail banking services to customers at their offices/homes as an alternative to going to the bank branch/ATM. This saves customers’ time, and gives more convenience for higher productivity.

3.2.3 Personal Computer (PC) Banking

PC-Banking is a service which allows the bank’s customers to access information about their accounts via a proprietary network, usually with the help of proprietary software installed on their personal computer”. Once access is gained, the customer can perform a lot of retail banking functions. The increasing awareness of the importance of computer literacy has resulted in increasing the use of personal computers. This certainly supports the growth of PC banking which virtually establishes a branch in the customers’ home or office, and offers 24-hour service, seven days in a week. It also has the benefits of Telephone Banking and ATMs.

³Leow, Hock Bee, "New Distribution Channels in banking Services." Banker’s Journal Malaysia, No.110, June 1999, p.48-56
3.2.4 Internet Banking

The idea of Internet banking according to Essinger\(^4\) is, “to give customers access to their bank accounts via a web site and to enable them to enact certain transactions on their account, given compliance with stringent security checks”. Internet Banking, which is described as “the provision of traditional (banking) services over the internet, by its nature offers more convenience and flexibility to customers coupled with a virtually absolute control over their banking”. Service delivery is informational (informing customers on bank’s products, etc) and transactional (conducting retail banking services).

As an alternative delivery conduit for retail banking, it has all the impact on productivity imputed to Tele-banking and Personal Computer-Banking. And it is the most cost-efficient technological means of yielding higher productivity. Furthermore, it eliminates the barriers of distance / time and provides continual productivity for the bank to unimaginable distant customers.

3.2.5 Branch Networking

Networking of branches is the computerization and inter-connecting of geographically scattered stand-alone bank branches, into one unified system in the form of a Wide Area Network (WAN) or Enterprise Network (EN); for the creating and sharing of consolidated customer information/records.

It offers quicker rate of inter-branch transactions and as a consequence distance and time are eliminated. Hence, there is more productivity per time

period. Also, with the several networked branches serving the customer populace as one system, there is simulated division of labour among bank branches with its associated positive impact on productivity among the branches. Furthermore, as it curtails customer travel distance to bank branches, it offers more time for customers’ productive activities.

3.2.6 Electronic Funds Transfer at Point of Sale (EFTPoS)

An Electronic Funds Transfer at the Point of Sale is an on-line system that allows customers to transfer funds instantaneously from their bank accounts to merchant accounts when making purchases (at purchase points). A Point of Sale uses a debit card to activate an Electronic Fund Transfer Process.\(^5\)

Increased banking productivity results from the use of EFTPoS to service customers shopping payment requirements in stead of clerical duties in handling cheques and cash withdrawals for shopping. Furthermore, the system continues after banking hours and hence continual productivity for the bank even after banking hours. It also saves customers’ time and energy in getting to bank branches or ATMs for cash withdrawals which can be harnessed into other productive activities.

3.3 Consumer Behaviour towards Internet Banking

Several converging reference domains and theories suggest numerous potential influences on consumer adoption of internet banking, including theories of consumer behaviour in mass media choice and use, gratification

theories, innovation diffusion, technology acceptance, online consumer
behaviour, online service adoption, service switching costs and the adoption of
internet banking.

As a generic theoretical framework, a bank must first attract banking
customer attention to the internet banking service before the consumer will
consider internet banking. However, unless the consumer has a high level of
internet accessibility at home or at work, he/she is unlikely to consider using
internet banking. The consumer also assesses whether it is convenient to conduct
his/her banking that way (convenience), how usable the application appears
(usability), and his/her perceived competence at internet use and banking
application use (self-efficacy). The consumer also considers whether the
perceived relative advantages of internet banking compared with other banking
forms outweigh perceived risks and costs. In addition, the availability of
sufficient support and in depth knowledge from the bank and its employees
contribute significantly to the adoption decision. Each component of the
framework is discussed in detail from the top of the framework to the bottom
hereunder.

3.4 Attention

It appears that the marketing of internet banking has eluded the attention
of many banking consumers who may be prospective adopters. Many non-users
mentioned not having known or thought about internet banking previously, nor
having seen it advertised. Several non-users highlighted the usefulness of the
research interviews as information sessions on internet banking. One non-user
who owned a brochure business alluded to the ineffectiveness of internet
banking marketing methods in which relevant materials were hidden inside standard bank mailings and subsequently discarded without having been read. Some participants remarked that they did not bank on the internet because they had not attempted it, believing it to be too complicated or of little interest - suggesting the need for banks to motivate interest, perhaps through an aggressive marketing campaign or incentives scheme. That is, gaining consumer attention is influential in the adoption of internet banking and that this must be achieved before any other factors are considered. Once such attention is gained, internet accessibility, the convenience of the internet channel, usability and self-efficacy factors may be considered, as discussed next 6.

3.5 Accessibility

"Access to computers is not the issue, but access to the internet is. Almost all the customers got computers at home, but not access to the internet at home."

This comment from a non-user is illustrative of non-user comments suggesting that missing or inadequate internet accessibility is a key influence on the adoption decision. Some participants with home internet connection utilised service provision with limited access hours, for cost-based reasons. They noted that this access time was used, however, for separate purposes such as finding children's homework references. An emerging issue is restrictive workplace internet practices and policy, with several non-users relaying stories of limited hours for internet use at work, and the need to perform work within this timeframe rather than utilising personal utility applications such as internet banking. Several users pointed to the high level of internet accessibility at their

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workplace where their personal computer was connected to the internet all day, and was therefore readily available. They mentioned the importance of this level of workplace access in making their banking channel choice. Overall, it is found perceptions of adequate internet accessibility to be fine-grained, with the need to have dedicated and unchallenged access held to be highly significant.

In addition to accessibility, there are three related factors - self-efficacy, convenience and usability. When participants spoke about convenience, they would sometimes refer to the internet's accessibility, whether they felt confident about internet and internet banking use, and whether the application was user-friendly (usability).

3.6 Self-efficacy

Control is an expression shown to have an effect on intention and usage in variety of domains. It relates to one's behaviour through the availability of knowledge, opportunities and resources which requires performing the specific function. Azjen\textsuperscript{7} defined controls as internal and external constraining factors. Internal control relates to self-efficacy while external control relates to environment. Despite the controversy of conceptualisation of control, empirical results confirm that both internal and external control plays an important role in shaping intention and behaviour across a variety of domains.\textsuperscript{8}


Further, the social cognitive theory of self-efficacy has been used in understanding human behaviour and performance in a wide range of activities. The researcher defined self-efficacy as one's belief or judgement on what customer can do with the skill the customer possess within a particular domain.

Several studies have found evidence of the relationship between self-efficacy and the adoption of technology. Venkatesh et al\textsuperscript{9} have identified that computer self-efficacy plays a role as an antecedent of perceived ease of use. The authors explained when users do not have experience on information system, their confidence in computer related abilities and knowledge can be expected to serve as the basis for their judgement about how easy or difficult a new system will be to use. In the Internet banking context, self-efficacy is treated as one's confidence in having the knowledge and skill in using the computer and the Internet to carryout banking transactions over the Internet.

Luarn & Lin\textsuperscript{10} found that self-efficacy has a significant positive influence on behavioural intention to use mobile banking.

3.7 Convenice

The convenience is the most important factor in making the decision to bank using the internet. Some users observed that internet banking is convenience as an extension of overall internet convenience - that is, they had obtained internet access in the expectation that many services and other needs fulfilment would be more convenient through its use. The convenience of

\textsuperscript{9}Ibid.

conducting business on the Internet has been a consistent theme in Pew Internet Project studies. Internet users pursuing health information, political news, and holiday gifts all cite convenience as a factor in their choice to go online to find what they are looking for. Internet users also say that email helps them stay in touch with friends and family without having to spend so much time talking to them. And Internet users who have a high-speed connection at home take advantage of “always on” access to get more online tasks accomplished in a typical day than the average dial-up user (Pew\textsuperscript{11}). The study of Pew has also emphasised the different nature of internet banking convenience for females compared with males, with two-thirds of the sample interviewed being female - in particular, the ability to bank at home, 24/7.

3.8 Usability

"The banks and financial institutions want everyone to go online, but they haven't actually set up their system so that people can actually use it." 'Ease of use' - or usability - was frequently cited and found closely linked to individual perceptions of complexity, web site design and integratability /interoperability. Interestingly, some non-users had formed views of complexity and site design usability issues without having sighted internet banking applications. Complexity concerns centred on registering and setting up the system. Web site design - in respect of aesthetics and other recognised site usability issues - affected consumer choices.

According to Marlin,\textsuperscript{12} the integratability and interoperability issues were considered important by many bank customers. In an internet banking environment, such issues include the ability to plug-and-play key components of the internet banking service infrastructure when needed, and the ability for key components to operate together as a single networked system. Indeed, one user rated integratability as the most important usability issue. The study described how the credit union account was part of a legacy system that was inaccessible from a modern internet banking system.

Four other factors had an important, though lesser effect on the adoption of internet banking, as revealed by earlier studies in this area. The factors are: risks, costs, relative advantage, and knowledge and support.

### 3.9 Risks

Participants considered internet-based risks in making banking channel choices. For most of the bank customers, the convenience factor of banking methods was seen as more important than risk according to a survey conducted among Australian banking consumers. Rogers\textsuperscript{13} finding that more innovative, risk accepting people are 'early adopters' may explain why users in our sample were less risk averse than non-users.

### 3.10 Trust

The customer says, "I don't really trust the bank, in a sense. That's why I have all the safeguards to ensure that I am ok myself, so that no big surprises

\textsuperscript{12}Marlin, S., "Banking for the 21st Century", \textit{Bank Systems and Technology}, July 1, 2005.

come up, suddenly.” This statement highlights how the trust issue was often perceived by bank customers and trust played a minor role in internet banking adoption for most participants compared with convenience and other issues. Distrust was largely couched in terms of banks distributing personal information to marketing companies, sending marketing literature to the consumer, or - of most concern to participants - not backing the consumer if something went wrong14.

3.11 Security

The reliability of internet connections and internet banking applications was a concern. Bank customers might face incidents such as computers not working, attempting to use internet banking only to find pages that did not load, and logging on only to read a message stating that there was a problem and advising the user to try again later. Confidentiality and privacy issues were often confused, with concerns expressed that data would be disclosed to others, but with a lack of differentiation between personal and other confidential information. While confidentiality was not part of the lay definition given them for security, participants viewed the confidentiality issue as a security concern in accordance with published definitions of information security that include protection of information confidentiality (as well as integrity and availability).15


3.12 Privacy

Consumers’ concerns about privacy in online banking have also been noted by many researchers. In the context of consumer attitudes toward internet banking systems, trust may be related to consumer judgement on security and privacy issues. Bank customers were generally aware of the privacy issues, including whether their personal information would be used by the banks or third parties to market new services to them. For a few non-users, privacy had been an important factor in the choice not to use internet banking. For example, one non-user had received poor advice from the bank, with the result that the account details ending up in non-bank hands. This had influenced the customer preparedness to take up internet banking.

3.13 Costs

Consumers cited various types of costs which had inhibited their use of internet banking. Burnham et al. identified procedural, financial and relational costs considered by consumers when switching between various types of service offerings and such costs were cited by participants.

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3.13.1 Procedural

Set-up and learning procedures were major hurdles for many non-users, while still not as significant to adoption as convenience issues. Users are highly likely to face with set up procedure as a key barrier that they had overcome. After set-up, procedures required to log on, access and download the banking site, and transact, were considered costly by bank customers.

3.13.2 Financial

The purchase of computer, internet access and transactions to the internet banking deserve certain changes. Further, there has been changes in the introduction of fees for internet banking recently where as there was no any charges previously.

3.13.3 Relational

While one customer who uses the online banking was pleased with the loss of contact with call-centre staff when moving from phone banking to internet banking, some users commented on the sadness of losing personal relationships with branch personnel. This suggests that for some people, there are relationship costs to be factored into the adoption decision.

3.14 Relative Advantage

Participant perceptions of relative advantage had clearly influenced choices of banking method. Some non-users of online banking facilities cited the lack of awareness of benefits as the reason why they had not adopted internet banking. Benefits were regarded as relative and were compared to a 'satisfying' decision, with many non-users suggesting their banking needs were already
being met. Several non-users felt that the claimed advantages of internet banking were for other types of people. Users were easily able to cite advantages of internet banking such as the ability to visualise account data, access to timely account data, and the ability to make the most profitable use of available funds through fund transfer among multiple accounts displayed on screen.¹⁹

3.15 Support and Knowledge

Bank customers sought knowledge about internet banking features, relative advantages and benefits; costs; risks; how to sign up and how to use; how to obtain support; and general problem-solving. Many participants among bank customers complained of inadequate access to required knowledge and to sources of assistance. Participants complained that many bank personnel knew very little about internet banking and, moreover, did not understand how it worked. In particular, personnel in branches did not appear to have this understanding and this was taken as a discouraging sign of poor levels of consumer service and support.

Support was needed even prior to registration in the form of a demonstration or tutorial, so that a prospective user could assess how internet banking worked, with suggestions including having training running continuously at branches. As an example of the need for initial support, one participant commented on the difficulties of trying to arrange for banking personnel to visit a rural area to conduct an awareness and training class for potential internet bankers. Support was also needed for initial registration and set

up, followed by responsiveness to ongoing concerns. One user observed that when banking staff were summoned to assist internet bankers, they were often not as responsive as with other types of consumers.\textsuperscript{20}

3.16 Ease of Use

Perceived ease of use motivates user acceptance when the system is easy to learn and use. The indirect effect is explained from a situation where other things equated, the less effort needed to use a system, the more system’s usefulness will be perceived by users. In other words, the system that is easier to use will facilitate more system use and task accomplishment than systems that are hard to use.\textsuperscript{21}

3.17 Usefulness

A significant number of studies have shown that perceived usefulness is an important antecedent to behavioural intention to adopt and use technology\textsuperscript{22}. In their studies, researchers stated that in a real work environment, behavioural intentions are based primarily on performance related elements, rather than on the individual's attitude towards the behaviour. In the Internet banking context, it is presumed that the level of usefulness that Internet banking offers over and above regular banking methods could affect intentions towards adoption and usage. For example, individuals who find it difficult to visit the bank branch would perceive the possibility of performing transactions at any time of the day from any location useful.


\textsuperscript{22}\textit{Ibid}
3.18 **Computer Skills and Adoption of Online Banking Services**

One may well expect that there exist interconnections between technologies such that the diffusion of any technology is not independent of the diffusion of another technology\(^{23}\). Internet banking is one of the technologies, that is quite dependent on computer networks. Also, it is an advanced technology over previous banking technologies. The consumers’ willingness to adopt a new technology is affected by their prior pattern of adopting related technologies, and the influence of one technology on the next generation of that innovation is expected to be positive especially when the relationship between two technologies is complementary\(^{24}\).

The prior computer experience such as Internet, e-mail, and e-payment had the most significant impact on online banking usage, and also technology experience, like ATM, was a significant factor for attitude towards online banking among Finnish bank consumers. Prior experience of technologies, especially prior experience of computers, had impact on consumer beliefs and attitudes towards related systems and technology\(^{25}\).

3.19 **Banking Technologies and Banking Service**

Heavy usage of banking service was the most significant factor in the adoption of Internet banking among non-adopters, and prior Internet purchase


behaviour was also a significant factor, but not as much as the usage of related banking technologies. Lee and Lee\textsuperscript{26} employed the use of banking service as a proxy variable indicating consumers’ need for banking service, and they indicated that heavy users of banking services might adopt Internet banking as a convenient option that can save time and effort. However, if consumers have no experience of previous banking technologies, they might find it hard to adopt recent banking technology. They might not be comfortable and lack the confidence to use Internet banking, even though they think Internet banking is necessary. Therefore, in order to investigate the relationship between banking technologies, it is more appropriate to study the effect of the use of related banking technologies such as ATM, debit cards and direct payments instead the use of banking service.

Consumers who have more ability to use banking technologies and computer software for managing money than others might more easily adopt Internet banking. Their ability might improve their efficiency in the use of Internet banking. Specifically, they might invest less time and money to learn the use of Internet banking, so they might be able to save more time and cost than others and that would affect their attitude towards Internet banking. Although consumers who have no experience in the use of banking technologies and computer software also recognize the benefit of Internet banking, they might hesitate to adopt Internet banking because they need to invest more time and money to learn Internet banking.

In this study, prior experience of computer software for managing money will be used as a proxy for prior computer experiences. Also, the prior experience of banking technologies like ATM, debit cards, direct deposit and direct payments will be used as the variables to determine adoption of Internet banking.

3.20 Gender choices

It has been reported by some experts that women have greater fear and less interest in new technologies such as the internet.\textsuperscript{27} However, as Wilson and Howcroft\textsuperscript{28} highlighted, technology and gender mutually construct one another through social shaping, thereby paving the way for gender attitudes towards adoption of new technology.

3.21 Role of Age and Income

In addition to the past experience in the use of computer software and of other banking technologies, the demographics factors should effect the adoption of Internet banking. Age affects the attitude of individuals towards Internet banking and their ability to learn how to invest. The consumers in the young age group are more likely to invest the time to learn to use Internet banking because young consumers can create more benefits through time saving. Also, consumers with higher income have higher value of time than consumers with lower income and so consumers with high income can create more benefits.

through adoption of Internet banking. Also, consumers with higher levels of financial assets benefit from the time saving advantages of Internet banking since they use money transactions more often.

3.22 Education and Occupation

Bartel and Sicherman\textsuperscript{29} indicated that more educated individuals may require less training in response to technological change if their general skills enable them to learn the new technology. Gronau and Hamermesh\textsuperscript{30} investigated differences in demand according to differences in the opportunity costs of various activities. The study indicated that well educated individuals have better home productivity than less educated individuals because they can produce household goods with relatively smaller inputs and time. Also, well educated individuals have relatively higher income. Therefore, well educated individuals have greater value of time than less educated individuals.

Consequently, well educated individuals will respond more quickly than less educated individuals when Internet banking, which has advantages for saving time and cost, is introduced. It is hypothesized that well educated individuals will adopt Internet banking relatively more quickly than less educated individuals because the new technology, Internet banking, guarantees reduction of the time needed for money transactions. Well educated individuals might be willing to submit training time to learn how to use Internet banking.


because they have the skills to acquire the knowledge quicker. However, the effect of education on adopting Internet banking should also depend on the age of the consumer. For example, the attitude of a college graduate towards adopting Internet banking is different at age 35 than 65 because the benefits and costs of adopting are different.

Karjaluoto et al.\textsuperscript{31} showed that occupation was a significant factor for adoption of Internet banking. The study divided occupation into two groups, white-collar workers and blue-collar workers. White-collar workers are more likely to adopt Internet banking than blue-collar workers. Highly paid skilled workers are more likely to use advanced technologies, because they can improve their productivity through using advanced technologies within a given time.

In this study, occupation is associated with adoption of Internet banking in terms of ability. If consumers have relatively more opportunity to use computer or Internet in their workplace than others, their ability to use technologies related to computer or Internet might be higher than others. The consumers are divided into two groups according to types of occupations. Consumers who have managerial, professional, and technical jobs are included in the first group. In general, they probably use computers or the Internet frequently in their workplace, so they basically have more ability to use computer or the Internet than those in the other group. Consumers who have service, labour, farming, fishing, and forestry jobs are included in the second group. They probably have less opportunity to use computers or the Internet in their workplace, so their ability to use computers or the Internet might be

\textsuperscript{31}Karjaluoto, H., Mattila, M., & Pento, T., \textit{op.cit.}
relatively weaker than the first group. As more and more banking and financial institutions implement Internet banking services, it is of paramount importance for these organisations to identify factors that influence users’ intention to adopt or use those services.

From theoretical framework, it becomes apparent that bank customers adopt Internet banking through perceived usefulness and perceived ease of use. It is further apparent from the framework that various characteristics of the bank customers as well as bank play vital role in influencing the adoption of e-banking and internet banking among customers. Hence, based on the above theoretical framework the questionnaire was designed and data collected. The collected data are subjected to various statistical analyses. The following three chapters provide the results of the analysis and discussion of the results.