

**FACTORS AFFECTING CUSTOMER USAGE INTENTION OF INTERNET
BANKING SERVICES IN YEMEN**

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A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy (Management)

Faculty of Management
Universiti Teknologi Malaysia

SEPTEMBER 2013

I dedicate this thesis to my parents as well as to my wife and my kids.

ACKNOWLEDGEMENTS

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

First of all, I would like to express my deep thanks to ALLAH SWT, the One and only one who granted me the perseverance and ability to successfully complete my PhD.

I cannot explain in words what I feel today, when finally, I have the opportunity to express my gratitude for all people who supported me. I would like to express my gratefulness to all of these people. I owe considerable thanks to my supervisor Assoc. Prof. Dr. Khalil Md Nor. From the first day, when I came to see him for an introductory meeting to this date, he has proven to be a very kind and helping person. He was always available when I needed him and was unstinting in his willingness to provide feedback, suggestions, help and encouragement throughout the entire process of writing this thesis. I also highly appreciate his incredibly fast turn-around time when reading drafts. I had the grateful fortune to be under supervision of Dr. Khalil, having him as my supervisor was the best thing that happened to me during my PhD. My sincere appreciation also goes to Dr. Ahmad Jusoh for his assistance and suggestions on my model development stage.

Acknowledgement also goes to all who helped me in translation process. My special gratitude is given to the banks' staff who distributed the survey and customers who participated in the study. Acknowledgement also goes to the research team's members who provided great effort during data collection process and data entry. My special gratitude is given to Assoc. Prof. Dr. Saleh Audah Said the internal supervisor for considerate comments and suggestions regarding this study, and unlimited support during the period of the study. Special thanks also go to my best friends, Dr. Mohamed Almakrdi and Dr. Ahmad Daghar for their encouragement and continuous support during the data collection process.

ABSTRACT

Despite the great deal of research that has been conducted in the technology adoption domain, there is still a need to empirically investigate factors that influence an individual's intention to adopt a new technology. Literature review in this field shows that emotional dimensions (i.e., optimism, innovativeness, skepticism and discomfort) related to technology readiness in terms of understanding an individual's intention to adopt a technology has been neglected. This research developed a more comprehensive model to investigate factors that influence individuals to use Internet banking. This is done by incorporating emotional dimensions related to technology readiness construct in the decomposed theory of planned behavior. In this theory, the decomposition approach provides a more complete set of antecedents that provide a better explanation of the intention to use the Internet banking service, thus enhancing the practical contributions of this study. This study applied the questionnaire survey method to collect primary data. Subjects for this study were 1198 bank customers of four banks in Yemen. Structural equation modeling was employed as the main statistical technique. The empirical results indicate that all the main beliefs, including technology readiness as the new construct of antecedents, have a significant effect on behavioral intention. The findings showed the effects of antecedents on main beliefs were significant with the exception of peers/colleagues and government, which were not supported. Approximately 64% of the total variance of intention was explained by this proposed model indicating that the addition of the technology readiness construct has increased the model's explanatory capability. The results reveal that the model provides a better understanding of factors that influence the intention to use Internet banking.

ABSTRAK

Kajian empirikal yang menyelidiki faktor-faktor yang mempengaruhi individu menggunakan teknologi baru masih perlu dijalankan walaupun telah banyak kajian seumpamanya dijalankan sebelum ini. Kajian ilmiah dalam bidang ini menunjukkan bahawa dimensi emosi (iaitu keyakinan, daya inovasi, keraguan dan ketidakselesaan) berkaitan dengan kesediaan teknologi dalam memahami niat seseorang individu untuk menerima pakai teknologi telah diabaikan. Justeru itu, kajian ini bertujuan untuk membangunkan model yang lebih menyeluruh untuk menyelidiki faktor-faktor yang mempengaruhi individu menggunakan perbankan Internet dengan menggabungkan dimensi emosi yang berkaitan dengan konstruk kesediaan teknologi ke dalam teori penguraian tingkah laku terancang. Dalam teori ini, pendekatan penguraian menyediakan satu latar belakang yang lebih lengkap bagi menyediakan penjelasan yang lebih baik kepada niat untuk menggunakan perkhidmatan perbankan Internet dan sekali gus meningkatkan sumbangan praktikal kajian ini. Dalam konteks pengumpulan data, kajian ini menggunakan kaedah soal selidik untuk mengumpul data primer. Subjek untuk kajian ini terdiri 1198 daripada pelanggan empat buah bank di Yaman. Bagi tujuan penganalisan, permodelan persamaan berstruktur digunakan sebagai teknik analisis statistik utama. Keputusan empirikal menunjukkan bahawa semua kepercayaan utama, termasuk kesediaan teknologi, mempunyai kesan yang signifikan ke atas niat dan tingkah laku. Hasil kajian menunjukkan kesan semua faktor kepada kepercayaan utama adalah signifikan kecuali rakan-rakan/rakan sekerja dan kerajaan. Kira-kira 64% daripada jumlah varian pada niat dijelaskan oleh model yang dicadangkan ini. Sementara itu penambahan konstruk untuk kesediaan teknologi telah meningkatkan keupayaan penerangan model tersebut. Dapatan kajian menunjukkan bahawa model yang dibangunkan menyediakan pemahaman yang lebih baik terhadap faktor-faktor yang mempengaruhi niat untuk menggunakan perbankan Internet.

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LIST OF ABBREVIATIONS

<i>AB</i>	-	Arab Bank
<i>AMOS</i>	-	Analysis of Moment Structures
<i>AT</i>	-	Attitude
<i>ATM</i>	-	Automatic Teller Machine
<i>AVE</i>	-	Average Variance Extracted
<i>CAC</i>	-	Cooperative and Agricultural Credit Bank
<i>CAIB</i>	-	Credit Agricole Indosuez Bank
<i>CBY</i>	-	Central Bank of Yemen
<i>CFA</i>	-	Confirmatory Factor Analysis
<i>CFI</i>	-	Comparative Fit Index
<i>CO</i>	-	Compatibility
<i>CR</i>	-	Critical Ratio
<i>DS</i>	-	Discomfort
<i>DTPB</i>	-	Decomposed Theory of Planned Behavior
<i>EU</i>	-	Ease of Use
<i>FL</i>	-	Factor Loading
<i>FR</i>	-	Friend
<i>FY</i>	-	Family
<i>GOF</i>	-	Goodness-Of-Fit
<i>GS</i>	-	Government Support
<i>HCB</i>	-	Housing Credit Bank
<i>IA</i>	-	Innovativeness
<i>IB</i>	-	Internet Banking

<i>IBD</i>	-	Islamic Bank for Development
<i>IBY</i>	-	International Bank of Yemen
<i>IC</i>	-	Inter-construct Correlations
<i>IDT</i>	-	Innovation Diffusion Theory
<i>IN</i>	-	Intention
<i>KSB</i>	-	Alkuraimi Islamic Microfinance Bank
<i>MB</i>	-	Mobile banking
<i>MM</i>	-	Mass Media
<i>NBY</i>	-	National Bank of Yemen
<i>NFI</i>	-	Normed Fit Index
<i>OP</i>	-	Optimism
<i>PBC</i>	-	Perceived Behavioral Control
<i>PBC</i>	-	Perceived Behavioral Control
<i>PE</i>	-	Colleagues/Peers
<i>EU</i>	-	Perceived Ease of Use
<i>POS</i>	-	Point of Sale
<i>PU</i>	-	Perceived Usefulness
<i>QNB</i>	-	Qatar National Bank
<i>RA</i>	-	Relative Advantage
<i>RB</i>	-	Rafidain Bank
<i>RFI</i>	-	Relative Fit Index
<i>RMSEA</i>	-	Root Mean Squared Error of Approximation
<i>RS</i>	-	Perceived Risk
<i>SBYB</i>	-	Shamil Bank of Yemen and Bahrain
<i>SE</i>	-	Self-Efficacy
<i>SEM</i>	-	Structural Equation Modeling
<i>SIB</i>	-	Saba Islamic Bank
<i>SK</i>	-	Skepticism
<i>SN</i>	-	Subjective Norm
<i>TAM</i>	-	Technology Acceptance Model
<i>TAM2</i>	-	Technology Acceptance Model 2
<i>TAM3</i>	-	Technology Acceptance Model 3
<i>TB</i>	-	Telephone Banking

<i>TIB</i>	-	Tadamon Islamic Bank
<i>TL</i>	-	Trialability
<i>TLI</i>	-	Tucker-Lewis index
<i>TPB</i>	-	Theory of Planned Behavior
<i>TR</i>	-	Technology Readiness
<i>TR</i>	-	Technology Readiness
<i>TRA</i>	-	Theory of Reasoned Action
<i>TS</i>	-	Technology Support
<i>TU</i>	-	Trust
<i>UBL</i>	-	United Bank Ltd
<i>UTAUT</i>	-	Unified theory of Acceptance and Use of Technology
<i>X²</i>	-	Chi-square
<i>X²/df</i>	-	Normed Chi-Square per degree of freedom ratio
<i>YBRD</i>	-	Yemen Bank for Reconstruction and Development
<i>YCB</i>	-	Yemen Commercial Bank
<i>YGB</i>	-	Yemen Gulf Bank
<i>YKB</i>	-	Yemen-Kuwait Bank for Trade and Investment

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Internet banking is the latest delivery channel for financial services. Internet banking is a self-service that allows customers to perform financial activities over the Internet (Aladwani, 2001; Tan & Teo, 2000). There is not a singled basic definition of Internet banking that is being used universally. There has been a lack of consensus in the definition given by researchers (Daniel, 1999; Sathye, 1999). Regardless of the differences in definition, Internet banking refers to many kinds of electronic services through which bank customers can request information and get most of the retail banking services via a computer. It is also commonly known as online banking or e-banking. Internet banking has been defined from different school of thoughts by various researchers depending on their experience, nature and study environment. For this research, Internet banking is defined as a self-service that enable bank customers to get access to their accounts and the latest general information on bank products and services, and conduct all financial transactions anytime from anywhere through the use of a bank's website (Chirani and Ghofrani, 2010; Thulani *et al*, 2009).

Internet banking provides a change from the traditional way of face-to-face contact at a bank's counter during office hours to a remote way by online network connection anywhere at any time (24 hours a day, seven days a week). Internet banking provides many advantages for bank and customers as well. Therefore, many banks have invested heavily in Internet banking services. Although Internet banking provides many benefits, many individuals still refuse this service. Since the acceptance or rejection of new technology depends on the factors that influence individuals' behavioral intention toward this technology, there is a need to determine which factors influence individuals' intention to accept new technology. Internet banking like other new technology faces many problems associated with its acceptance. Yemeni banks, as other banks in the Middle Eastern countries, have suffered from problem of Internet banking rejection. So far limited studies have tried to deal with this problem. Therefore, this research investigated factors that influence individuals' acceptance of Internet banking services, and used Republic of Yemen as the sampling frame. This chapter provides an overview of this study; the background of the study, then present the research gap and opportunity, the research problem statement, research questions, research objectives, the justification of study and the motivations to conduct this research. The significance of the study, and the contribution and definition of key terms, are also presented. Before presenting the summary at the end of this chapter, the researcher provided the structure of this thesis, to serve as a guide to the layout of this thesis.

1.2 Background of the Study

Over the past decade, the need to use information technology has increased rapidly in various countries around the world. The Internet is one of the most important products of modern IT (Mitchell, Lebow, Uribe, Grathouse and Shoger, 2011). The Internet has been increasingly employed in the delivery of financial services. In particular, the Internet, nowadays, has mainly contributed in the development of electronic payment. Financial transaction, which provided by

Internet banking support many kinds of e-commerce services and activities. Internet banking offers many advantages to customers (Lee, 2009a; Michailidis *et al.*, 2011). The financial transaction conducted via the Internet is one of the most important customers' services. It provides a variety of financial services; customers can get financial services and perform transactions on the Internet through the website of a bank at any time, from anywhere where Internet access is available (Hu and Liao, 2011). Because of the intense competition, financial institutions have invested huge amounts of money to improve their electronic banking services. They seek to satisfy customers' needs and desires, by moving financial services from a face-to-face to a self-service technology (Wessels and Drennan, 2010). Internet banking provides many benefits not only for customers, but also for the bank as well. However, there are many customer groups that have still refused to use Internet banking services (Thuong and Koh, 2002; Yaghoubi and Bahmani, 2010; Koenig-Lewis, Palmer and Moll, 2010).

Researchers have focused on customers' intention to adopt new technology. They have looked for factors that affect, not only, customer acceptance of new self-service technologies (e.g., Internet banking) but also to examine their influence and predict customer intention to use such services (Al-Majali and Nik Mat, 2011; Sadeghi and Farokhian, 2011; Al-Gahtani, 2011; Gorbacheva, Niehaves, Plattfaut, and Becker, 2011). Research into customers' beliefs and perceptions is very important, because it forms the basis for not only understanding, but also predicting and influencing individuals' behavior in the future.

As we live in the information era, an immense amount of information is readily available through powerful computers, which are connected through a high speed communication system, which enables network users to transmit information to each other around the world (Gounaris, Koritos and Vassilikopoulou, 2010). The rapid rate of change in the business environment has continuously pushed the need for technologies and acceptance of these technologies at an accelerating rate (Littler and Melanthiou, 2006; Mäenpää, Kale, Kuusela, and Mesiranta, 2008). Several studies have examined the factors that hinder customers from utilizing Internet

banking as a relevant financial delivery channel in many developed countries around the world (Alsajjan and Dennis, 2010). However, it seems that there are very few empirical studies that have captured the nature and essence of Internet adoption in the banking sector in Arab countries (AbuShanab, Pearson and Setterstrom, 2010; Al-Gahtani, 2011; AL-Majali and Nik Mat, 2011).

The World Wide Web (WWW) significantly altered the contemporary business landscape for both businesses and individuals. As of 2011, the number of Internet users worldwide had increased to 2,095,006,005; whereas it was nearly 360,985,492 in 2000 (Internet World Stats, 2011). Furthermore, between 2000 and 2011, the annual growth rate of Internet users worldwide has been estimated to be 480.4 percent, with the Middle East experiencing a rate of 1,987.0 percent (Internet World Stats, 2011). This growth of Internet usage has created many new opportunities for Middle Eastern firms to provide services and products, particularly within the banking industry. The utilization of Information Technology (IT) products has rapidly developed throughout the world through the Internet facilitates linking many IT products (Ozer, 2004). Due to recent advances in the past decade in telecommunication and computer technology, the Internet has become the fastest growing marketplace in the world and has emerged as the leading medium and innovative distribution channel for businesses (Calisir and Gumussoy, 2008).

Internet banking is an alternative banking channel. It offers a change from the traditional way of standing in the waiting area in front of a bank's counter during office hours to an automatic way through online network connection, anywhere, at any time, around the world. Internet banking provides many benefits not only for a bank's customers but also for a bank itself as well (Hu and Liao, 2011). The benefits the users gain include convenience and flexibility. This is because these new services can be easily accessed at any time from any locations with up-to-date information, efficient and effective response time, and use friendly use of the technology (Aderonke and Charles, 2010; Pikkarainen, Pikkarainen, Karjaluoto and Pahnla, 2004). Users also enjoy a self-service, reduced stress of standing in line in front of bank employees, and reduction in transaction cost (Hu and Liao, 2011).

Internet banking also offers benefits to service providers. It offers them the opportunity for cross-selling banking services and products, thus improving performance. It is also extending their services by making the service available at all times of the day. This enhances the banks competitive position (Pikkarainen *et al.*, 2004). Furthermore, Internet banking enables the bank to satisfy customer needs, create new distribution channels, and improve the bank image. Additionally, it decreases their operation costs when compared to that of the traditional branch-based banks. It has been indicated that Internet banking service delivery has the least cost, the most comfortable and lucrative delivery channel for banking products (Pikkarainen *et al.*, 2004; Aderonke and Charles, 2010).

Like other new technologies, Internet banking faces with the challenges of customer adoption. Since the success of this service is dependent on its adoption rate, therefore, there is a need for a better understanding of the factors that lead to customer intention to use Internet banking. There is also the need to identify the factors that encourage customers to use Internet banking services, at the same time, identify the factors that impedes the adoption of Internet banking. Many people refuse to accept new technology, although they are aware that by not using information technology innovation such as Internet banking, they can lose a lot of benefits in their personal life and in work as well (Kuisma, Laukkanen and Hiltunen, 2007; Durkin, Jennings, Mulholland and Worthington, 2008).

Consequently, many studies dedicated a great effort to determine factors that affect the acceptance of Information Technology (IT). “Due to a lack of grounded theory in the IT field, researchers have turned to models that have been developed in other areas as a foundation for their research. In the case of predicting an individual’s intention to adopt IT, information systems (IS) researchers have borrowed intention models from social psychology as the foundation for their research” (Md Nor, 2005). For instance, the Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975). TRA was derived from the social psychology setting. TRA suggested that an individual’s behavioral intention depends on the individual’s attitude about the behavior and subjective norms. Many researchers have used the TRA model to

explain individuals' intention to accept new technology. After that, the Theory of Planned Behavior (TPB) was developed by Ajzen (1991) as an extension of the TRA. TPB proposed that individual's behavioral intention is influenced not only by individual's attitude about the behavior and subjective norms, but also by perceived behavioral control. Several studies have used TPB as a fundamental framework and extended it by other factors to explain individuals' adoption of new technology (e.g., Lee, 2010; Crespo and Bosque, 2010; Casaló, Flavián and Guinalú, 2010; Yaghoubi and Bahmani, 2010; Yaghoubi and Bahmani, 2011).

From the extensive review of previous studies, the researcher has found several competing models that have been widely applied by IS/IT researchers to predict the intention to adopt new technology. Davis, Bagozzi and Warshaw (1989) introduced a model called the Technology Acceptance Model (TAM). It has focused on investigating the factors that influence individuals' intention to use a specific innovation or service. It consists of three antecedents' concepts of behavioral intention; perceived ease of use, perceived usefulness, and attitude toward behavior (Davis et al., 1989). Several studies found that perceived ease of use and perceived usefulness play a significant role in influencing individuals' intention through the individuals' attitude toward the adoption of a new technology (e.g., Lu, Chou and Ling, 2009; Gu, Lee and Suh, 2009; Wei, Chong, Ooi and Arumugam 2009; Roca, García and Vega 2009; Kim, Kim and Shin, 2009; Lee, Hsieh and Ma, 2010; Pan and Jordan-Marsh, 2010; Wessels and Drennan, 2010; Egea and González, 2011; Pai and Huang, 2011; Karaali, Gumussoy and Calisir, 2011; Lin, Fofanah and Liang, 2011).

In addition, the Decomposed Theory of Planned Behavior (DTPB) pointed out that decomposition of attitude, subjective norm and perceived behavioral control is better to predict individuals' behavioural intention (see more detail about DTPB in chapter: 3, section 3.6, p. 75). Based on the diffusion of innovation theory, Taylor and Todd (1995a) decomposed the attitudinal belief to three dimensions; relative advantage, complexity and compatibility. This decomposing provides more understanding of the relationships between the antecedent variables structures and intention (Taylor and Todd, 1995a). Taylor and Todd (1995a) concluded that the

decomposed model of the TPB provides better explanatory power than the pure TRA, TPB, and TAM models.

Last but not the least, Venkatesh, Morris, Davis, and Davis (2003) established the Unified Theory of Acceptance and Use of Technology (UTAUT). It includes four determinants of intention and usage, with four moderators of key relationships. They found that performance expectancy, effort expectancy, social influence and facilitating condition have significant direct influence on individuals' intention toward adoption of innovation. Several researchers have also used UTAUT as a framework. They used it to determine factors that influence individuals' intention to adopt new technology (e.g., Kijisanayotin, Pannarunothai and Speedie, 2009; Dulle and Minishi-Majanja, 2011; Im, Hong and Kang, 2011).

According to the above discussion, it can be seen that previous studies have focused on some specific group of factors such as attitude, subjective norm and perceived behavioral control that influence behavioral intention. When Fishbein and Ajzen introduced TRA in 1975, it was considered the first study that investigated the factors that influence people's behavioral intention. After that, several theories were formed based on TRA; TAM (Davis *et al.*, 1989), TPB (Ajzen, 1991), and DTPB (Taylor and Todd, 1995a). Finally, Venkatesh *et al.* (2003) unified eight models to investigate factors that influence individuals' intention to use information technology. Venkatesh *et al.* (2003) provided the latest model in technology acceptance domain named UTAUT.

All these models/theories assume that individuals are rational. Thus, individuals always decide to adopt a new technology based on accurate information about the outcome. If the performance of a particular behavior will achieve individual's goal, they will perform this behavior. On the contrary, if the performance of a particular behavior does not achieve individual's goal, the individual will refrain from the performance of such behavior because it does not lead to specific advantages (Ajzen, 1991). Previous technology acceptance models

seem to ignore other factors that play a significant role in influencing individuals' behavioral intention. These factors represent irrational motivators (i.e., optimism, innovativeness, insecurity and discomfort) that determine the individual's mental readiness (technology readiness) to accept new technology. Technology readiness (TR) has been proposed as one of the most important variables that influence individuals' intention towards the adoption of new technology (Chan and Lin, 2009; Berndt, Saunders and Petzer, 2010; Parasuraman 2000; Erdogmus and Esen, 2011). This leads to shed light on the research gap, and shown the opportunity for conducting research, which discussed in the next section.

1.3 Research Gap and Opportunity

The research into adoption of new technology domain has attracted many researchers and practitioners as well. Internet banking is one of the most important information technology applications. A review of the literature indicated that past studies dealt with the Internet banking issue from many angles. Every researcher has provided the factors that influence behavioral intention from his or her point of view. The majority of past studies focused on exploring factors that affect the adoption or intention to accept Internet banking services. For example, convenience of Internet banking transactions, Internet experience (Awamleh, 2005), bank's web design and transaction speed (Yoon, 2010), switch cost, offline loyalty and offline trust (Lee, Tsai and Lanting, 2011). However, several studies have investigated the effect of Internet banking service quality on adoption. For example, Broderick and Vachirapornpuk (2002), Janda, Trocchia, and Gwinner (2002), Joseph and Stone (2003), Khan and Mahapatra (2009), Zarei (2010) and Hu and Liao (2011) indicated that Internet banking service quality play a significant role in influencing the adoption of Internet banking services. At the same time, other previous studies have paid attention to security and perceived risk. They found that security and perceived risk have a significant influence on individuals' intention toward the acceptance of Internet banking services (Claessens, Dem, De Cock, Preneel and Vandewalle, 2002;

Hutchinson and Warren, 2003; Centeno, 2004; Jin and Fei-Cheng, 2005; Huang, Shen, Yen and Chou, 2011; Chang, Hwang, Yen, and Huang, 2006; Bauer and Hein, 2006; Rotchanakitumnuai and Speece, 2007; Durkin, Jennings, Mulholland, and Worthington 2008; Calisir and Gumussoy, 2008; Lee, 2009a; Luo, Li, Zhang, and Shim, 2010; Reis, Gülseçen and Bayrakdar, 2011).

The other majority of Internet banking research studies had used models/theories, which commonly used to investigate the factors that influence individuals' intention toward the acceptance of new technology. The previous models/theories are Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB) and Unified Theory of Acceptance and Use of Technology (UTAUT). Several studies have used IDT to determine factors that influence the adoption of Internet banking (e.g., Kolodinsky *et al.*, 2004; Ndubisi and Sinti, 2006; Hernandez and Mazzon, 2007; Md Nor and Pearson, 2007; Eriksson, Kerem and Nilsson, 2008; Md Nor, Pearson and Altaf 2010; AL-Majali and Nik Mat, 2011; Gerrard, Cunningham, and Devlin, 2006). While, other studies used TRA (e.g., Md Nor, AbuShanab and Pearson, 2008; Ok and Shon, 2010; Yousafzai, Foxall and Pallister, 2010; Sadeghi and Farokhian, 2011; Shih and Fang, 2004; Wan, Luk, and Chow, 2005). And other studies have used TAM (e.g., Chau and Lai, 2003; Wang, Wang, Lin and Tang, 2003; Ramayah, Jantan, Noor, Ling, and Razak, 2003; Lallmahamood, 2007; Al-Sukkar and Hasan 2005; Cheng, Sheen, and Lou, 2006; Ndubisi, 2007; Pikkarainen *et al.*, 2004; Lai and Li, 2005; Ho and Ko, 2008; Al-Somali, Gholami and Clegg, 2009; Mouakket, 2009; Song, 2010; Chong, Ooi, Lin and Tan, 2010; Md Nor, Sutanonpaiboon and Mastor, 2010; Al-Gahtani, 2011; Eriksson, Kerem, and Nilsson, 2005). Also TPB were used to determine factors that influence intention to use Internet banking services (e.g., Liao, Shao, Wang and Chen, 1999; George, 2004; Mashadi, Tofighi, Nasserzadeh and Mashadi, 2007; Jaruwachirathanakul and Fink, 2005; Shih, 2007; Gopi and Ramayah, 2007; Md Nor and Zainal, 2009; Lee, 2009a; Yaghoubi and Bahmani, 2010; Yaghoubi and Bahmani, 2011). Other researchers used DTPB to investigate the factors that affect customers' intention toward the using of the Internet banking services (e.g., Tan and Teo, 2000; Shih and Fang 2004; Md Nor, 2005; Maditinos,

Tsairidis and Grigoriadis, 2009; Md Nor and Pearson, 2008; Jaruwachirathanakul and Fink, 2005; Al-Majali and Nik Mat, 2010). Finally, numerous studies used UTAUT to investigate factors that influence intention to adopt Internet banking (e.g., AbuShanab and Pearson, 2007; Yeow, Yuen, Tong and Lim, 2008; Cheng, Liu, Qian, 2008; Yuen and Yeow, 2009; Al-Qeisi, 2009; AbuShanab *et al.*, 2010; Zhou, Lu and Wang, 2010; Gorbacheva *et al.*, 2011).

According to the earlier discussion of the previous studies, it can clearly be seen that most past studies were conducted based on individuals' rational, they make systematic decisions based on available information. Individuals' adoption of Internet banking services depends on their evaluation of the available information about it. The evaluation result leads to acceptance or rejection of this service (Fishbein and Ajzen, 1975; Ajzen, and Madden, 1986; Doll and Ajzen 1992). Most of previous work in Internet banking acceptance domain assume individuals are rational and make systematic decisions based on available information, whereas do not taken into account the impact of irrational/emotional dimension (i.e., optimism, innovativeness, insecurity and discomfort), which determine the individual's technology readiness to accept new technology.

Based on the researcher knowledge, there has been no study that investigated the relationship between individuals' technology readiness and their intention toward the adoption of Internet banking services. The technology readiness (TR) refers to "people's propensity to embrace and use new technologies for accomplishing goals in home life and at work" (Parasuraman, 2000, p. 308). Technology readiness (TR) reflects an overall state of mind; it is not a measure of competence, it describes the person, not the technology. TR is influenced by psychological factors - innovativeness (tendency to be a technology pioneer and thought leader), optimism (positive view about technology), discomfort (feeling of being overwhelmed by technology), and skepticism (distrust of technology) - strengthen or weaken individuals' technology readiness toward adoption of new technology (Chan and Lin, 2009; Berndt *et al.*, 2010; Erdogmus and Esen, 2011; Lam, Chiang and Parasuraman, 2008).

From a literature search, the researcher found several studies that provide empirical support indicating the importance of technology readiness as a direct or indirect influencing factor in an individual's intention to accept various types of technology such as; online purchase (Ranaweera, Bansal and McDougall, 2008), e-filing system (Lai, Obid and Meera, 2004), online-investment (Lin, Shih, Sher and Wang, 2005; Lin, Shih and Sher, 2007), online taxation technology (Chen and Huang, 2006), mobile-phone (Matthing, Kristensson, Gustafsson and Parasuraman, 2006), and mobile Internet (Wu and Herlina, 2008). In addition Chen and Li (2010), Berndt, Saunders and Petzer (2010) and Chan and Lin (2009) indicated that individuals who have a higher level of technology readiness, have a higher level of the intention to accept new technology-based services in varying degrees.

As far as the researcher knowledge, there is no Internet banking study that focuses on the irrational/emotional dimension (i.e., Innovativeness, optimism, discomfort and insecurity) in the past studies. Furthermore, the reviews of the existing literature of technology readiness have also revealed that there is no previous study conducted into technology readiness in the domain of Internet banking. Therefore, there is an opportunity for the researcher to conduct research and bridge this gap in the Internet banking research field. Moreover, findings from previous models/theories about the influences of difference variables on individuals' intention to accept new technology are inconsistent. There is a contradiction between previous technology models/theories, which one model includes some variables, whereas, other models omitted them out. For example, UTAUT ignored attitude, while other theories (TRA, TAM, TPB and DTPB) considered it as one of the most important variables that influence individuals' intention to use new technology (Fishbein and Ajzen, 1975; Davis *et al.*, 1989; Ajzen, 1991; Taylor and Todd, 1995a), as well as self-efficacy (Taylor and Todd, 1995a).

Moreover, some models employed different terminologies in their expression of acceptance variables, but they are essentially the same concepts (see more detail in the next section research problem statement in this chapter). These shed light to another research gaps. At the same time, advocate developing a more comprehensive

model, including all potential variables that may influence individuals' intention to accept new technology in general and the Internet banking services, in particular, in a single model. Therefore, the researcher believes that current research could be the basis to develop more comprehensive model in technology acceptance field. The research contributions provide a new knowledge to the existing literature of the acceptance of the new technology in general, and to the Internet banking services, in particular.

One major criticism of the technology acceptance theories/models is that they have not taken into account irrational/emotional dimension influence. The research to date has tended to focus on specific factors (i.e., attitude, subjective norm and perceived behavioral control) rather than irrational/emotional dimension (i.e., optimism, innovativeness, skepticism and discomfort) that significantly influence technology readiness (TR), which, in term has played a significant role in influencing individuals' intention to accept or reject a new technology (Chen and Li, 2010, Berndt, Saunders and Petzer, 2010; Chan and Lin, 2009).

Consequently, there is an opportunity to improve knowledge in the Internet banking domain by investigating the influence of more comprehensive variables on individuals' intention toward acceptance of Internet banking services. The current study aims to establish an empirical examination. The researcher intends to provide a more comprehensive model. The study's model not only includes existing variables in previous models/theories, but also includes additional variables that integrate IDT into DTPB. Furthermore, it added TR to DTPB in order to exceed the previous studies' limitations, at the same time improve this theory and increase its explanatory power within the Internet sector in Yemen as a study context.

1.4 Research Problem Statement

Due to the rapid advances in telecommunication and computer technology development in the past decade, the Internet has become the fastest growing marketplace in the world. It has emerged as the leading medium, and innovative distribution channel for businesses (Hua, 2009). The Internet has transformed the traditional retail banking into Internet banking. The Internet is one of the e-commerce tools that is adopted by the banking industry. Internet banking is playing a critical role in improving the banking industry (Michailidis *et al.*, 2011). IT tools such as Internet banking have provided an improvement in services in the banking industry, with the attendant provision of the advantages for both customers and the bank (Mitchell *et al.*, 2011; Lee, 2009a). The trend in the utilization of Internet banking has shown a rapid growth in developed countries. At the same time, in developing countries, there is also a trend toward the adoption of Internet banking, but not at the same rate as in the developed countries (World Retail Banking Report, 2011, Al-Somali *et al.*, 2009; Mouakket, 2009; Al-Gahtani, 2011; Al-Majali and Mat, 2011).

One developing country, which Internet banking has been growing slowly in recent years, is the Republic of Yemen (Zolait, 2008). Internet banking is still at the infancy stage in Yemen (Alhariry, 2007). Yemen has been moving towards the cyber financial system since the year 2002. The government has introduced the electronic payments gateway and the e-Rial¹ for the first time to facilitate government payment (Ba'alawy, 2003). In spite of Yemen's financial institutions' great efforts to provide easier and more useful financial services systems, Yemeni consumers' adoption of online financial services has been slower than anticipated (Central Bank of Yemen, 2011). This is despite the fact that people can perform fast and convenient financial transaction using Internet banking services. Customers can easily access their up-to-date account information at any time (24 hours a day, seven days a week, 365 days a year) from any locations around the world. Many people are still reluctant to use

¹ Rial is the Republic of Yemen's currency.

Internet banking services. Therefore, it is necessary to understand what factors affect the people's intentions to use Internet banking services, so as to provide support and assistance, which encourage customers to use electronic banking. Many efforts have been made to ensure the success of electronic banking in Yemen. For example, in 2006, the Central Bank of Yemen (CBY) issued decrees related to electronic transactions. Decree No (40) issued on 28/12/2006 regulates the payment, financial transactions and electronic banking. Furthermore, the Yemen government encouraged foreign banks operating in Yemen to increase their investment in electronic banking. This led to increased competition between banks in Yemen (Community of Yemeni banks, 2010).

The Central Bank of Yemen (2012) in its annual report reveals that cash has remained the major means of payments in Yemen. This is reflected by a continued increase in the currency in circulation per capita with an increase in the value of transactions from 1711 billion Rial in 2010 to 2047 billion Rial in 2011. This implies that in spite of the development and promotion of non-cash payment systems by both the government and the private sector, there is increased tendency to use cash compared to the use of other means of payments in Yemen such as ATM, electronic payments systems, and Internet banking.

Moreover, the number of Internet services subscribers clearly reflects the demand size of the Internet banking service (White and Nteli, 2004). The ITU report (2012) indicated that there was an increase in the number of Internet subscribers in the Republic of Yemen, which increased from 15,000 in 2000 to 3,691,000 Internet users as of 2012 (14.9% population penetration). However, the percentage of Internet banking users to the total number of Internet users in Yemen is too lower compared to other countries. Yemen, in comparison, has a much lower Internet banking penetration proportion compared to that of many countries in Europe. For example, in the case of the United Kingdom, approximately 16.9 million customers (33.3 percent of the UK's population) used the Internet banking financial services in 2006. Germany, however, was expected to have two million more Internet banking customers than the UK in the same year. In addition, the Nordic countries have the

highest Internet banking penetration rate in Europe, equal to 43 percent of the Nordic region's population (Celik, 2008). Moreover, Yemen is the lowest countries in adopting Internet banking in Arab region. A.T. Kearney report (2012) indicated that 18% and 20% Internet banking penetration in Saudi Arabia and Kuwait respectively, however, Internet banking adoption in Yemen is still limited (Zolait, 2011).

According to the above discussion, the literature has shown the Internet banking advantages and an increasing trend of electronic financial transactions over the Internet. This same trend can also be found in Yemen. However, the literature has also shown that the acceptance of Internet banking among Yemeni consumers is not as advanced when compared to their counterparts in other countries. Despite some Yemeni financial institutions' huge investments in online financial services systems, Yemeni consumers' adoption of online financial services has been slower than anticipated. That is, in Yemen, online financial services systems have not been used as much as they could or should have been. The question is why? Also what factors influence Yemeni banks' customers adoption of Internet banking services? Therefore, it is necessary to conduct research on the factors that affect individual acceptance of Internet banking in Yemen. It will increase the understanding of how their particular beliefs or motives affect their utilization of Internet banking.

In addition, many studies have examined the adoption of Internet banking in various developed countries. So far, research in Internet banking services in Yemen is still in its infancy. It has not received a sufficient attention. This suggests a need to understand Yemeni Internet users' adoption behavior regarding Internet banking services. There is a need to identify the potential factors that may motivate or impede Yemeni bank customers' acceptance of online financial services. There is yet, no academic research regarding customers' intention to use Internet banking in the Republic of Yemen. Therefore, this current research aims at filling this gap.

As discussed in the research gap and opportunity section, previous technology acceptance models/theories (IDT, TRA, TPB, TAM, DTPB and UTAUT)

that were used to determine factors that affect individuals' intention to accept new technology seem to suffer from some limitations. They focused only on several salient factors (i.e., attitude, subjective norm, perceived behavioral control). Although researchers have been extended the existing model by incorporating various factors in each study, however, factor that is related to emotional dimension is not being incorporated.

Moreover, some technology acceptance models/theories attempted to employ different terminologies in their expression of acceptance variables, but they are essentially the same concepts. In addition to that, when the researcher compares the technology acceptance theories/models (IDT, TRA, TAM, TPB, DTPB and UTAUT) it can be observed that the intention's antecedents are very similar. For example, comparing UTAUT's antecedents with other theories revealed that the performance expectancy is similar to perceived usefulness, and the effort expectancy similar to ease of use. Social influence is very close to the subjective norm in TRA, TPB and DTPB. Finally, there is no difference between the facilitating conditions in the both DTPB and UTAUT. In addition to that, despite the fact that TAM and IDT originated in different disciplines, they have clear similarities. For instance, the relative advantage attribute of innovation is often considered to be the perceived usefulness construct in TAM, and the complexity attribute is similar to the perceived ease of use concept in TAM. This suggests that TAM and IDT reconfirm and often goes together (Chen, Gillenson and Sherrell, 2002).

Moreover, previous models/theories have been established based on the hypothesis that individuals are rational and that they make systematic decisions based on available information in surrounding environment (Ajzen, 1991). Thus, they have not taken into account irrational/emotional dimension (i.e., optimism, innovativeness, insecurity and discomfort) that related to individuals' technology readiness. However, several studies found a significant relationship between individual's emotional motives (technology readiness) and intention to accept new technology (Lai, 2007; Wu and Herlina, 2008; Lam et al., 2008; Chan and Lin, 2009; Chitturi, 2009; Berndt et al., 2010). To solve these problems, one emotional

dimension (technology readiness) has been suggested to be an important variable in influencing individuals' intention to accept new technology (Chen, Lin, Chen and Wang, 2008; Theotokis, Vlachos and Pramataris, 2008; Lai 2008; Wu and Herlina, 2008; Chan and Lin, 2009; Berndt et al., 2010; Chen and Li, 2010). Technology readiness has appeared to have the possibility to be incorporated in the study of new technology self-service's acceptance (Liljander, Gillberg, Gummerus, and van Riel, 2006; Lin and Hsieh, 2006; Lin, Shih and Sher, 2007; Lin, 2007; Lin and Hsieh, 2007; Rhee, Verma, Plaschka, and Kickul, 2007; Lai, 2007; Ranaweera et al., 2008). Moreover, to the researcher's knowledge, there is no prior empirical study that has been conducted to investigate the relationship between individuals' technology readiness and individuals' intention to accept Internet banking services. In the context of both developing and developed countries, there has been no study conducted. Incorporating this construct, enhance explanatory power to predict individuals' behavioral intention in Internet banking context.

Traditionally, technology readiness studies have been done in the context of the adoption of new self-services technology (see: Parasuraman, 2000; Lai, Obid and Meera, 2004; Tsikriktsis, 2004; Lin, Shih, Sher and Wang, 2005; Chang and Kannan, 2006; Chen and Huang, 2006; Matthing *et al.*, 2006; Liljander *et al.*, 2006; Lin and Hsieh, 2006; Lin, Shih and Sher, 2007; Lin, 2007; Lin and Hsieh, 2007; Rhee *et al.*, 2007; Lai, 2007; Ranaweera *et al.*, 2008; Chen, Lin, Chen and Wang, 2008; Theotokis *et al.*, 2008).

The above discussion shows the limitations of previous models/theories. At the same time, it highlights the need to develop a comprehensive model to avoid all the shortcomings in previous studies. Therefore, to fill these gaps in the Internet banking domain (as mentioned in the research gap and opportunity section), the current study aims to develop a comprehensive model that include all potential variables that influence individuals' intention to accept Internet banking services as a new technology in the Yemen Arab Republic.

1.5 Research Questions

The framework for this study was based on the decomposed theory of planned behavior (Taylor and Todd, 1995a). In addition, the current study extended the decomposed theory of planned behavior by incorporating additional construct i.e., constructs from innovation diffusion theory (relative advantage, ease of use, compatibility and trialability), perceived risk, trust, mass media influence, family's influence, friends' influence, technology support, government support. Furthermore, one major contribution to knowledge, the current study incorporated technology readiness into DTPB. The current study is seeking to investigate the factors that influence individuals' intention to accept Internet banking in Yemen. Therefore, this study looked for the answers to the following research questions:

1. What are the factors that affect Internet banking adoption? Do attitude, subjective norm, perceived behavioral control, and technology readiness influence the consumer's intention to use Internet banking services?
2. What are the specific factors affecting the consumer's attitude to use Internet banking? Do relative advantage, compatibility, ease of use, trialability, perceived risk and trust affect the attitude?
3. What are the specific factors affecting the consumer's subjective norm? Do mass media, friends, colleagues/peers and family affect subjective norm?
4. What are the specific factors affecting the consumer's perceived behavioral control? Do self-efficacy, technology support, and government support affect perceived behavioral control?
5. What are the specific factors affecting the consumer's technology readiness? Do optimism, innovativeness, scepticism and discomfort affect individuals' technology readiness?
6. Does technology readiness explain additional variance in behavioral intention?

1.6 Research Objectives

This research tries to add to the body of knowledge in the area of technology acceptance. It investigated factors mentioned above that may affect individuals' intention to use Internet banking. Moreover, it extends our knowledge of the factors affecting Internet banking adoption by customers in one of the developing countries, the Republic of Yemen. Specifically, the principal objectives of this study are:

1. To determine whether attitude, subjective norm, perceived behavioral control and technology readiness affect intention.
2. To examine whether perceived relative advantage, perceived ease of use, compatibility, trialability, perceived risk and trust affect attitude.
3. To investigate whether mass media, friends' influence, peers/colleagues' influence and family's influence affect subjective norm.
4. To investigate whether self-efficacy, technology support and government support affect perceived behavioral control.
5. To examine whether optimism, innovativeness, scepticism and discomfort affect technology readiness (individuals' mental readiness).
6. To evaluate whether the technology readiness contribute to explain additional variance in individuals' intention to accept Internet banking services.

1.7 Justification of Study and Motivation

There are some main justifications that prompted the researcher to conduct this study. They can be explained as follows: first of all, previous research has indicated that customer acceptance is the main factor to be considered in the development of Internet banking in the future. Therefore, this requires further research to facilitate a comprehensive understanding of factors that influence intention to accept Internet banking services (Venkatesh *et al.*, 2003). It has become

very important for bank managers to know why customers accept or reject this service (Lassar, Manolis and Lassar, 2005). An understanding of factors that affect intention to use Internet banking helps banks to maintain existing customer and attract potential one.

In addition, according to the discussion in the research problem statement, it can be seen that Internet banking services adoption is still very low in Yemen. Yemeni banks have invested heavily in Internet banking (CAC Bank, annual report 2010). However, there is evidence indicating that the use of Internet banking is still very low. Zolait (2008) indicated that Internet banking in Yemen has been underused by the Yemeni customers in spite of their availability. Alhariry (2007) showed that 72% of banks' customers have never used Internet banking, and 31% customers prefer traditional banking. Furthermore, only one point seven percent (1.7%) of the total Yemeni population was found to have used Internet banking (ITU, 2012). Moreover, the Central Bank of Yemen (2012) in its annual report reveals that cash has remained the major means of payments in Yemen. This is reflected by a continued increase in the currency in circulation per capita with an increase in the value of transactions from 1711 billion Rial in 2010 to 2047 billion Rial in 2011. This implies that in spite of the development of Internet banking, there is an increased tendency to conduct financial activities manually compared to the use of electronic form via the Internet banking. In addition, Yemen has the lowest Internet banking penetration in Arab region. A.T. Kearney report (2012) indicated that 18% and 20% Internet banking penetration in Saudi Arabia and Kuwait respectively. However, Internet banking adoption in Yemen is still limited (Zolait, 2011). Moreover, in contrast to about 53 million Americans have the Internet banking account. In other words, one in four Americans adults uses Internet banking (Market research, 2006). This information indicates that Internet banking adoption faces rejection in Yemen as well as in most Arab countries (AbuShanab *et al.*, 2010). This evidence leads to the question: what are the factors that influence the adoption of Internet banking service? All these reasons motivated the researcher to conduct this study.

Therefore, there is a need for research on factors that influence individuals' intention to use Internet banking. It is necessary to investigate why customers are afraid of conducting financial transactions via the Internet (Amini, Ahmadinejad and Azizi, 2011). Perhaps they think any error could cause them to lose money. They are also may scared of hacking issues. Hackers' attack may lead to the theft of user ID and passwords (Lu, Cao, Wang, and Yang, 2011; Polasik and Wisniewski, 2009; Aldás-Manzano, Lassala-Navarre, Ruiz-Mafé, and Sanz-Blas, 2009). In addition, Internet banking activities are performed virtually, without personal contact (Md Nor and Pearson, 2008), which can raise doubts about Internet banking ability to complete financial transaction properly. Thus, Internet banking adoption requires a high level of trust before individuals start to conduct financial transactions via the Internet. Moreover, individuals in Arabic countries are still not fully confident in utilizing Internet banking transactions because they have a negative attitude towards Internet banking. There are few studies have been investigated trust influence attitude, in developing countries in general and in Middle East context in particular (Alsajjan and Dennis, 2010; Al-Somali, Gholami and Clegg, 2009). The negative attitude toward Internet banking could be as a result of various reasons such as: difficult of use of Internet banking, lack advantage, and incompatible innovation with individuals' culture and value. Additionally, attitude may be influenced by risk and lack of trust. Therefore, all previous reasons require investigation to determine their influence on individuals' attitude toward using Internet banking.

In addition, acceptance of Internet banking may also be influenced by a decline of the effect of social factors. Therefore, it is necessary to investigate the impact of social factors on individuals with regards to Internet banking adoption. The lack of influencing social factors could be one of the major factors that make the adoption of Internet banking very low (Al-Qeisi, 2009). In this regard, Laukkanen, Sinkkonen and Laukkanen, (2009) indicate that the lack of channels of mass media's influence leads to a lack of knowledge of Internet banking service's advantages. Moreover, the limitation of previous studies that investigated the influence of social factors such as mass media, friends, peers and family, highlights the need to conduct this study.

At the same time, the lack of self-efficacy, technology support (Internet infrastructures) and government support may cause the lack of Internet banking acceptance. The weakness of technological support and limitation of government support may cause a low level of Internet technology diffusion and Internet banking acceptance as well. The infrastructure and deficiency of the Internet also causes the shortcoming in its applications, especially, Internet banking (Alhariry, 2007). Moreover, psychological factors that affect individuals' technology readiness (propensity) has, perhaps, a significant influence on individuals' intention to use Internet banking, especially, those who have never used Internet banking. However, technology readiness has, so far, never been investigated in the Internet banking domain. The above are the rationales that underscore the need for further research.

In addition to that, the discussion of the problem statement and the research's gaps show the limitations of past models/theories (IDT, TRA, TPB, TAM, DTPB and UTAUT). It can be seen that they have neglected irrational/emotional dimension, which strengthen or weaken individuals' technology readiness (propensity) in term have significant influence individuals' intention to accept new technology (Chen and Li (2010). Therefore, the current research was conducted to also bridge this theoretical gap. Moreover, there is no comprehensive model includes all potential factors that influence individuals' behavioral intention (as shown in the research problem statement and research gaps) is also one of the reasons that motivated the researcher to conduct this research. The researcher aims to develop a comprehensive model, including all potential influencing factors, in a single model.

Finally, one of the most important rationales that necessitated the undertaking of this study is the fact that most Internet banking studies have been conducted in developed countries. However, in general, very few studies have been conducted in developing Arab countries. In particular, Internet banking is a new technology in Yemen. Thus, it is a worthwhile topic to study. In addition, the current study of Internet banking in Yemen was conducted in an attempt to improve Internet banking service in the future. At the same time, the Internet banking adoption has not been currently investigated in Yemen. Moreover, literature revealed that there is a problem

with the use of the Internet banking not only in Yemen but in the most of Middle East countries. Customers have hesitated in adopting Internet banking services (Aladwani, 2001; Alsajjan and Dennis, 2010; AbuShanab, Pearson and Setterstrom, 2010; Al-Somali, Gholami and Clegg, 2009). It is thus as a result of all the above-mentioned reasons, that the researcher decided to conduct this study.

1.8 Scope of the Research

Currently, there has been a consensus among both academics and practitioners on the importance of the banking system in any country. It is the main driver of economic growth and development (Al-Marri, Ahmed, and Zairi, 2007; Al-Swidi and Mahmood, 2011). The banking sector significantly contributes to the prosperity and overall growth of the economy (Al-Marri *et al.*, 2007). Facilitating the mobility of financial resources among different parties in the economic structure is an important role banks play. In other words, banks are considered as the intermediaries between households (savers) and investors in establishing different types of enterprises. Internet banking is one of the most important components of the banking system. Internet banking has been used as a channel to distribute banking services and products. The success of Internet banking depends on the rate at which it is accepted. Therefore, the researchers have paid more attention to investigating the factors that influence the adoption of Internet banking (Eriksson *et al.*, 2008; Md Nor, Pearson and Altaf, 2010; Al-Gahtani 2011; Al-Majali and Mat 2010; Gorbacheva *et al.*, 2011). There has not been any study conducted in Yemen to determine the factors that influence the acceptance of Internet banking. Thus, this study tried to explore the significant factors that influence individuals' intention to accept Internet banking. In addition, it used the banks' customers in the Republic of Yemen as the sampling frame.

This study was applied to the Internet banking services' setting. It involved the banks' customers who have traditional bank accounts (individuals, non-users of Internet banking). The study was conducted on four banks that provide Internet banking services. These includes: Cooperative & Agricultural Credit Bank (CAC), Yemen Commercial Bank (YCB), Arab Bank (AB) and Yemen Gulf Bank (YGB) (Community of Yemeni banks, 2010). These banks were selected for the study as they provide full electronic banking services, and at the same time, their customers are geographically distributed in all the regions of the Republic of Yemen. This study covers the three main regions in Yemen: South, Middle and North regions (CSO, 2010).

Since the four banks have been offering Internet banking services, their customers are able to access this service from anywhere and at any time (CAC, 2011). Data were collected from banks' branches located in four major cities. These includes: Sana'a, Aden, Hodeidah and Taiz. The main reason for choosing these cities, that is, they represent the various governorates of Yemen. Sana'a is located in the north, Aden is located in the south, while Hodeidah and Taiz are located in the middle of Yemen. Thus, the sample reflects a diverse set of Yemen's population. The wide range of population increases the generalization of the research findings.

1.9 Significance of the Study and Contribution

The findings of this study are beneficial not only to bank customers and managers of banks, but also to the society as a whole. This research is thus a contribution to the growing body of literature on technology acceptance. Furthermore, it advances the body of knowledge on the antecedents of technology and the intention to accept and use Internet banking in developing countries. This study is giving a unique perspective to the electronic banking sector of the Republic of Yemen. In other words, this study is very useful for two levels including the academic level and the practical level. Thus, the current study set out to make contributions to knowledge as follows.

1.9.1 Significance and Contributions to Academic Research

The acceptance of Internet banking is a new topic in Yemen. It is therefore worthwhile to conduct this study, the result of which could be used to determine factors that influence individuals' intention, improve the banking sector, and enhance the quality of Internet banking services in Yemen in the future. The current study is significant because it adds new information to the literature of technology acceptance. The researcher developed a new model based on DTPB as a comprehensive model, including all important variables from previous studies. In addition, the current study extended DTPB by the new construct i.e. technology readiness to investigate a set of antecedents that have an influence on individuals' intention to accept Internet banking services. Furthermore, to the researcher's knowledge, no prior empirical study has investigated the relationship between individuals' technology readiness and intention to accept Internet banking services. Moreover, online financial services' research in Yemen is still in its infancy stage. It has not received any academic attention. Therefore, more academic attention should be paid to the study, helping to understand the potential factors that may motivate or impede customers to use Internet banking services.

Furthermore, past studies have not also been consistent with the factors that influence new technology adoption. In other words, there is a contradiction between previous models/theories regarding factors that influence individuals' intention, so current study includes all potential factors that may influence behavioral intention into the current study model. Moreover, although each theory uses different terminologies in their expression of acceptance factors, they are essentially the same concepts. Therefore, this study developed a more comprehensive model and, thus, constituting an important contribution to the emerging literature on online customer behavioral intention. This has been done by establishing new variables into well-accepted general models (DTPB and TR) and applying them to a new context of Internet banking. Accordingly, DTPB in this study, not only includes existing variables in previous theories and models, but also incorporate new variables. DTPB has been extended by the addition of the technology readiness constructs that are

considered as the real contribution and a new addition to the technology acceptance theories as well. This may lead to increased DTPB explanatory power.

At the same time, the findings provide more details about factors that influence individuals' behavioral intentions in a new self-service technology industry. In addition, the instrument that has been developed in this study was translated into Arabic language and used to test the research model. This study validated the instrument and the proposed model in the Republic of Yemen. Moreover, this study is the first academic study that is conducted in the Republic of Yemen to determine the factors that affect customers' intention to use Internet banking.

In addition to the above academic importance and contribution, this study would be modified and applied to other online services. For example, online education, online auction services, and online publishing services and so on. This can be done by adopting the theoretical factors presented in this research. Besides, it is beneficial to researchers who are interested in the study of technology adoption. Finally, the study is significantly contributed to the global understanding of technology acceptance through the development of the research model in the Arabic cultural context. This study present a new model based on DTPB to predict individual intention to use new technology. The study tested and verified the theoretical framework and the practical applications in the environment of Yemeni banks. The outcome is useful to an academic or scholarly standpoint and can be used as a fundamental framework for other research in Yemen and also in other countries (see more details about contribution to academic research in chapter: 6, section 6.3.1, p. 255)

1.9.2 Significance and Contributions to Practice

In spite of Yemen's financial institutions' great efforts to provide easier and more useful financial services systems, Yemeni consumers' adoption of online financial services has been slower than anticipated (Central Bank of Yemen, 2011). This study examined variables (attitudes, subjective norm, perceived behavioral control, and technology readiness variables) affecting the adoption of Internet banking services. It is significant for financial institutions to understand individuals' acceptance and preferences concerning Internet banking services. Moreover, the current study helps the financial institutions, and other interested parties to formulate appropriate marketing strategies and design effective online financial services systems so banks can accelerate the diffusion of Internet banking services in the future, which will lead to increase the bank's competitive advantage. In addition, the current study provides an overall picture and a clear description of relevant aspects of the Internet banking sector in Yemen. The present study contributes to wider understanding of Yemeni financial business' Internet banking, in particular, including the intention to use Internet banking and usage behavior in the future. Moreover, it provides effective guidance to the banking industry in developing strategic plans to promote products and services via Internet banking in the future.

From the practical perspective, bank managers and other decision makers in the banking sector need information about how their customers act and react toward the new technology, in particular, Internet banking. The current study provides a comprehensive acceptance model to bank managers to understand customers' intention and the factors that influence the intention. Based on these factors bank managers will be able to acquire a better understanding and build a stronger relationship with customers. Therefore, the findings of this study could provide a solid base for bank managers to explore the factors that determine the adoption of Internet banking. In addition, the current study shed light on the relationship technology readiness and intention of bank customers, thus allowing marketing executives and bank managers to obtain better understandings of factors affecting customers' Intention to use Internet banking. Consequently, the current study's

findings could provide a broad database that forms a strong foundation for bank managers to determine the incentives of the customers and to design appropriate strategic marketing plans to encourage and convince customers to accept Internet banking services. Specifically, bank managers could encourage the use of Internet banking services by strengthening positive technology readiness drivers (optimism and innovativeness dimensions). At the same time, technology readiness inhibitors (discomfort and skepticism dimensions) should be reduced to lower reluctance to use Internet banking. Based on the understanding of technology readiness, and the traditional variables in the research model, bank managers will be able to design an appropriate marketing plan to motivate and encourage the customers to use Internet banking services.

Finally, since customers in other developing countries might share the identical circumstances faced by the Yemeni customers, it is expected that the results from this study will help bank managers in other developing countries to understand the Internet banking adoption issues as well (see more details about contribution to practice in chapter: 6, section 6.3.2, p. 259).

1.10 Definition of Key Terms

In this section, the researcher introduces the definition of key terms that will appear frequently in this study. These terms were explained more in the literature review in chapter three.

Attitude toward the behavior: refers to “the degree to which a person has a favourable or unfavorable evaluation or appraisal of the behavior in question” (Ajzen, 1991, p. 188).

Perceived relative advantage: is defined as: “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003, p. 229).

Perceived ease of use: is defined as: “the degree to which the prospective user expects the target system to be free of effort” (Davis *et al.*, 1989, p. 985).

Compatibility: is defined as: “the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters” (Rogers, 2003, p. 240).

Trialability: is defined as: “the degree to which an innovation may be experimented with on a limited basis, which allows individuals to “test drive” an innovation before it is being adopted” (Rogers, 2003, p. 243).

Perceived risk: is defined in Internet banking as “the subjectively determined expectation of loss by an online bank user in contemplating a particular online transaction” (Lee, 2009a, p. 131).

Trust: is defined as: “a willingness to rely on another party and to take action in circumstances where such action makes one vulnerable to the other party” (Doney, Cannon and Mullen, 1998, p. 604).

Subjective norm: is defined as: “the perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991, p. 188).

Mass media influence: is defined as: “the influence or pressures from the mass media to perform the behavior” (Ng and Rahim, 2005, p. 239).

Friends’ influence: refers to the influence or pressure from close friends to adopt new technology (Md Nor, 2005).

Colleagues/peers’ influence: refers to the influence or pressure from colleagues/peers to adopt new technology (Md Nor, 2005).

Family influence: is defined as: “the influence or pressure from sources known (family) to perform the behavior” (Ng and Rahim 2005, p. 239).

Perceived behavioral control: is defined as: “the perceived ease or difficulty of performing the behavior or people’s perceptions of their ability to perform a given behavior” (Ajzen, 1991, p. 188).

Self-efficacy: refers to, “a person’s judgment of their capabilities to organize and execute courses of action required to attain designated types of performances. It is

concerned, not with the skills one has, but with the judgment of what one can do with whatever skills he/she possesses” (Bandura, 1991, p.391).

Technology support: is defined as the effort of providing the suitable infrastructure, the needed appliances, Internet access and software for using the technology (Goh, 1995).

Technological government support: is defined as creation of a suitable environment to encourage the individuals and the organizations to use the technology and adopt the technological developments (Goh, 1995).

Technology readiness: refers to, “people’s propensity to embrace and use new technologies for accomplishing goals in home life and at work” (Parasuraman 2000, p. 308). (Technology readiness reflects an overall state of mind; it is not a measure of competence, it describes the person, not the technology).

Optimism: refers to, the degree to which an individual is expecting that using Internet banking is the best way to manage his or her financial business (Parasuraman and Colby, 2001).

Innovativeness: refers to individuals who have, “a tendency to be a technology pioneer and thought leader. It measures the extent to which an individual believes that he or she is at the forefront of trying out new technology-based products and/or services and is considered by others as an opinion leader on technology-related issues” (Parasuraman and Colby, 2001, p. 38).

Scepticism: refers to individuals' doubt in technology’s ability to work properly (Parasuraman and Colby, 2001).

Technological discomfort: refers to individual’s feeling of being overwhelmed by technology. It represents the extent to which people have a general paranoia about technology-based products and services believing that they tend to be exclusionary rather than inclusive of all kinds of people (Parasuraman and Colby, 2001).

1.11 Structure of the Thesis

To accomplish the research objective, which this research seeks to achieve, and to answer research questions, this thesis is divided into six chapters. Figure 1.1 depicts the structure of this thesis followed by a brief summary of each chapter.

Chapter One provides an overview of the thesis as a whole by giving a brief introduction to the background of the study along with the research gap and opportunity, and discuss the research problem statement as well as present the research questions that are related to the research problem. The main objectives, justification of study and motivation and scope of the research are provided. In addition, the significance of the study and contribution is also given. Furthermore, in this chapter, the definition of key terms and the structure of the thesis are presented. Finally, the summary of this chapter is provided.

Chapter Two attempts to give an overall picture of the contemporary context of Internet banking in the Republic of Yemen. It starts with a contextual profile of Yemen, including the location, population and demography. The Yemeni Economy is explained. This chapter also includes development of Internet technology in Yemen, and discuss banking and finance development in Yemen including the historical background of banking in Yemen and banking system structure in Yemen. The development of electronic banking services in Yemen comprises of; electronic banking services, mobile banking (SMS) and (TB) services, automated teller machine (ATM) and Internet banking (IB) is be given, which may help to give a clearer picture of the situation of Internet banking in Yemen. Lastly, before the summary, the evaluation of electronic banking services in Yemen is discussed.

Chapter Three critically reviews the research and theories that are related to adoption behavior to provide strong foundations for a development of a theoretical frame work. These theories are: Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology

Acceptance Model (TAM), Decomposed Theory of Planned Behavior (DTPB), Unified Theory of Acceptance and Use of Technology (UTAUT) and related literature to Technology Readiness (TR). Then history of Internet banking, definitions of Internet banking, Internet banking types and advantages of Internet banking is provided. Furthermore, this chapter presents Internet banking acceptance research. After that, a proposed conceptual model is presented. Rationale for choosing DTPB and theoretical hypotheses of the relationship between these factors are explained. Finally, chapter summary is provided.

Chapter Four outlines a research plan and methodology, which used in this study to answer research questions and to achieve the research objectives. This chapter focuses on research design, sampling method and sampling frame, including; research population, sample size and sampling procedures. This chapter also explains the method of study. Furthermore, development of the questionnaire, including, translation process, pre-testing and pilot study is investigated. In addition, the chapter discusses administering the survey, data analysis, data preparation and screening, and data analysis methods. Summary is provided.

Chapter Five mainly reveals descriptive statistics of the data that are collected from the survey. It displays a general picture of the demographic characteristics of responses, and general descriptive statistics for key variables in the conceptual model. The statistical data were analyzed by the Structural Equation Modelling (SEM) using the Analysis of the Moment Structures (AMOS 18.0) software package. Statistical Package for the Social Sciences (SPSS 17.0) software package also was used to conduct some statistical analysis. Moreover, data preparation and screening (such as missing data, outliers, and normality) were also explained. The measurement model evaluation and structural model validation with hypotheses testing results are presented. Finally, summary of data analysis and results is provided.

Chapter Six provides discussion of the results. It shows the research findings in response to the initial research questions and hypotheses of this study.

Furthermore, it highlights the contributions of this study to the academic research and practice. In addition, the research implications, including theoretical and practical implications are discussed along with the limitations of the study and suggestions with considerable and meaningful guidance for further research.

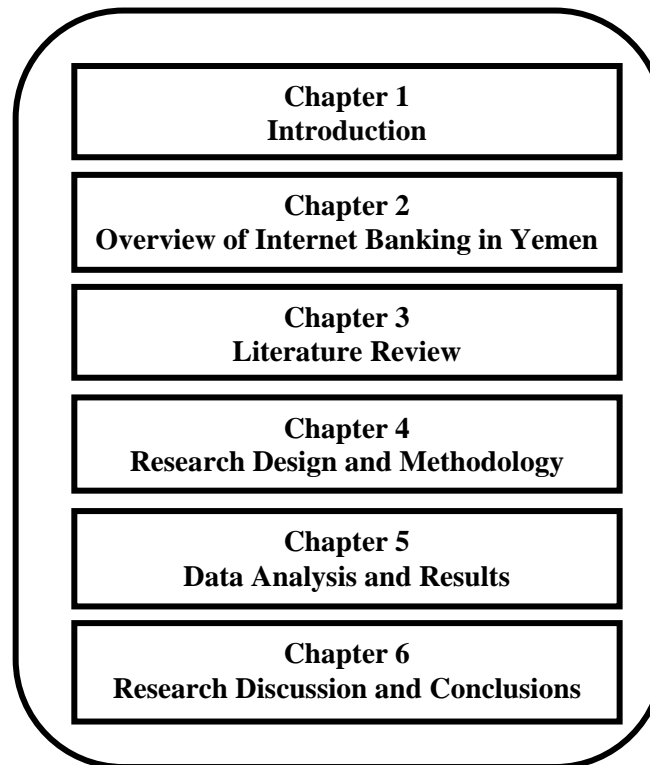


Figure 1.1: Structure of the Thesis

1.12 Summary

This chapter presents the research background, research gap and opportunity, research problem statement, research questions, research objectives, justification of study and motivation, scope of the research, significance of the study and contribution, and definition of key terms as well as the structure of the six chapters of this study. The structure of the thesis is also presented in Figure 1.1. The next chapter provides general facts about the Republic of Yemen, the development of the banking industry and Internet banking in Yemen and the evaluation of Internet banking in the Republic of Yemen.

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