Marketing Strategies and National Culture:

an empirical investigation of customers' acceptance of the online banking channel in the context of Saudi national culture.

A Thesis Submitted for the Degree of Doctor of Philosophy

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Abstract

Technology and the development of the Internet has led to greater awareness among organisations of the role the Internet can play in improving services through online channels. Banks, financial institutions and the relevant government authorities in the Kingdom of Saudi Arabia (KSA) have made great progress towards improving their e-services; however, these efforts came with a lack of theoretical background concerning the main challenge, which is to encourage customers to accept Online Banking (OB). This research has explored these concerns, with the aim of providing better understanding of the salient factors affecting people's acceptance and adoption of OB technology within the specific national cultural context of Saudi Arabia.

The literature suggests numerous factors as determinants of people's technology adoption in general and OB in particular. This study employs a qualitative approach to narrow down and identify factors that did not emerge in the literature, to arrive at the most appropriate ones. The qualitative stage of the research involved a combination of two focus groups (14 participants) and eight semi-structured interviews. After accomplishing the first stage, a model was proposed to explain the factors affecting user acceptance of technology in the context of OB in Saudi Arabia comprising eight constructs (Perceived Usefulness, Resistance to Change, Perceived Trust, Perceived Usefulness, Social Influence, Perceived Quantity, Uncertainty Avoidance and Perceived Image). A cross-sectional survey was developed and distributed, resulting in 945 responses for use in the data analysis (using SPSS 20.0), for descriptive and exploratory factor analysis to extract constructs of the model.

To finish, the proposed model and its hypotheses were examined by applying two-stage structural equation modelling. The conceptual model was found to be of value in explaining the role of the chosen factors that affect user acceptance of technology. The research found the seven direct predictors of BI to use OB explained 84.5 percent of BI variance. From the findings, it was found that the most significant predictor of BI was UA, followed by RC then PU.

This research contributed to knowledge by providing a new e-service adoption model involving the impact of national culture. The newly proposed factors (PQ and UA as determinants) helped understand users' e-behaviours in KSA where research is seriously under-developed. The research limitations and recommended further efforts are finally presented.

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Abbreviations

A	Attitude
ABP	Automatic bill payment
AGFI	Adjusted Goodness-of-Fit Index
AMOS	Analysis Moment of Structures Software
ANOVA	Analysis of Variance
ATM	Automatic teller machine
AVE	Average Variance Extracted
BI	Behavioural Intention
CFA	Confirmatory factor analysis
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CIA	Central Intelligence Agency
CITC	Communications and Information Technology Commission
CM	Critical Mass
CR	Construct Reliability
cr	Critical Ratio
Df	Degrees of Freedom
DTPB	Decomposed Theory of Planned Behaviour
e-banking	Electronic banking
EFA	Exploratory Factor Analysis
EFT	Electronic Funds Transfer
e-market	Electronic Market
e-marketing	Electronic Marketing
F.G 1	Focus Group 1
FA	Factor Analysis
GCC	Gulf Cooperation Council
GFI	Goodness of fit index
IBAM	Internet Banking Acceptance Model
ICT	Information and communication technology
IDT	Innovation Diffusion Theory

IDV	Individualism versus Collectivism
IND	Indulgence versus Restraint
IS	Information Systems
ISU	Internet Services Unit
IT	Information technology
KACST	King Abdul Aziz City for Science & Technology
KMO	Kaiser-Meyer-Olkin
KSA	Kingdom of Saudi Arabia
LTO	Long-Term Orientation
MAS	Masculinity versus Femininity
MCAR	Missing Completely at Random
ML	Maximum Likelihood
NFI	Normed Fit Index
NPD	Product development
OB	Online banking
PBC	Perceived Behavioural Control
PCA	Principal Component Analysis
PDI	Power Distance Index
PEOU	Perceived ease of use
PI	Perceived Image
PQ	Perceived Quantity
PRA	Pragmatic versus Normative
PU	Perceived usefulness
RC	Resistance to Change
RMSEA	Root mean square error of approximation
S.E	Standard Error
SAMA	Saudi Arabian Monetary Agency
SCT	Social Cognitive Theory
SEM	Structural Equation Modelling
SI	Social Influence
SIC	Squared Interconstruct Correlations
SN	Subjective Norms
SPSS	Statistical Package for Social Sciences

STC	Saudi Telecommunication Company
TAM	Technology Acceptance Model
TAM2	Technology Acceptance Model 2
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UA	Uncertainty Avoidance
UAI	Uncertainty Avoidance Index
UTAUT	Unified Theory of Acceptance and Use of Technology

Chapter One: Introduction

1.1 Introduction

Rapid development in technology has led to greater awareness of the role of the Internet in improving online services. With online banking (OB), it is not a big challenge any more for banks to select suitable ways to reach customers. Furthermore, local banks are more likely to be global ones, requiring less effort for them to reach customers, wherever they are based. In addition, the Internet revolution has opened locked doors for small financial institutions to compete with older and bigger banks. Finally, it has become easier for banks to personalize their services, in order to increasingly satisfy their customers.

On the other hand, the move towards online banking has not been an easy option for banks, as it requires a well-designed and well-maintained website to keep it secure, updated and attractive. These tasks need big investments to be managed internally or through outsourcing. Banks not only face challenges in adopting OB, but also the challenges of encouraging customers to accept it. This research explores these concerns, academically and practically, to provide a better understanding of people's acceptance and adoption of technology in the context of OB in Saudi Arabia.

This chapter introduces background to the study and how it will be conducted. Several perspectives need to be discussed in order to arrive at a clear vision, and the motivations behind it. The perspectives of marketing, online banking, technology adoption and culture are presented in the first section, followed by the research questions. The main aim of the research and the objectives are subsequently clarified. The next section presents the research context that justifies the conduct of the research in the context of OB in Saudi

Arabia. The contributions and implications of the study in the area of technology acceptance in general, and in the context of Saudi OB in specific, are also discussed. Finally, a research outline is presented to indicate which subjects are covered, and in which chapter.

1.2 Marketing, online banking, technology adoption and culture

Marketing is considered to be one of the main tasks an organisation needs to consider carefully, as it is responsible for maintaining relationships with customers, by increasing their satisfaction and loyalty, which in turn benefits the organisation (Pride & Ferrell, 2010). Kotler, Wong, Saunders & Armstrong (2008) emphasize that managers should pay more attention to marketing strategies and activities, as it concerns the most important resource, namely the customers. Setting marketing strategies depends on target markets and customers, and the organisation's position in that market. It involves designing the marketing mix, including distribution strategies. The main role of marketing distribution strategies is to make services and products available for customers, when and where they are needed. For that reason, organisations can choose one or more channels in order to reach customers. According to Jobber (2010), marketers face a real challenge when they come to making decisions. Choosing among different channel strategies has a significant impact on the future of any organisation. Some organisations allow their customers the facility to select among various channels in order to reach them, and that is called "Multi-channel marketing". Recently, multi-channel marketing has been used to describe the combination of traditional and electronic marketing channels, such as combinations between traditional banking and online banking (Klaus & Nguyen, 2013).

With increased movement towards online channels, the importance of e-marketing and its impact on marketing performance development has increased (Chaffey & Smith, 2013). E-marketing can be defined as: *"using the Internet and other interactive technologies to create and mediate dialogue between the firm and identified customers*" (Coviello, Milley & Marcolin, 2001, p. 26). Nowadays, the majority of banks have decided to employ online channels, to allow their customers to perform banking transactions electronically, instead of visiting traditional on-street branches (McWilliam, 2012). One among many benefits banks gain from adopting online banking is financial cost reduction (Alsajjan & Dennis, 2010). While the importance of OB is clear, some organisations find it a difficult decision to choose between online and traditional banking. The cornerstone in this issue is the clear understanding of customers' perceptions about OB services (McWilliam, 2012).

Customers who adopt online banking look at it as a valuable tool to save time, money and effort, while customers who prefer less social contact find online banking to be the perfect choice to complete financial transactions (Lal, Vij & Jain, 2013). As a result, the cornerstone of successful OB services is customer perceptions regarding OB services. Banks have started to recognise that customer behaviour is not an easy issue to predict and control (Tidd & Bessant, 2011). Therefore, investigating customer attitudes as regards any new technological services in general and to OB specifically has become an important banking issue. Clear understanding of customers' perceptions, intentions and behaviour towards OB will provide banks with an opportunity to set their marketing strategies to suit their customers' way of thinking.

OB has attracted a considerable amount of attention in the literature (Liao, Shao, Wang & Chen, 1999; Wang, Wang, Lin & Tang, 2003; Pikkarainen, Pikkarainen, Karjaluoto &

Pahnila, 2004; Al-Somali, Gholami, & Clegg, 2009; Lee, 2009; Alsajjan & Dennis, 2010 Akhlaq & Ahmed, 2013). Many studies have investigated the role of trust in the context of OB (e.g. Lee, 2009; Akhlaq & Ahmed, 2013). Liao *et al*. (1999) investigated the role of critical mass on subjective norms in the context of electronic banking, and found it to have a statistically significant impact. Al-Somali *et al*. (2009) investigated online banking in Saudi Arabia, covering adopters and non-adopters of OB, with the aim of identifying the factors that inspire bank customers to use online banking. Alagheband (2006) and Mzoughi & M'Sallem (2013) examined customers' resistance to changing their current banking operations to Internet ones, and found it was one of the greatest barriers for banks wishing to improve their online services.

Several authors (Srite & Karahanna, 2006; Pookulangara & Koesler, 2011; Hwang, & Lee, 2012; Kaba & Osei-Bryson, 2013) argue that it is important to investigate public technology acceptance in different cultures, in order to analyse how behaviour varies across different countries and cultures around the world. Since culture potentially impacts people's actions and their behavioural intentions, a greater number of studies are required across different cultures to strengthen the validity of technology adoption models (Kaba & Osei-Bryson, 2013).

1.3 Research gap motivations and questions

The literature demonstrates the need for a conceptual model that takes account of the factors affecting user acceptance of technology, especially within the national cultural context of developing countries such as Saudi Arabia. The banks and related government authorities in Saudi Arabia have made great progress in improving their e-services;

however, these efforts have come with a shortfall in theoretical background. Academically, insufficient efforts have been made in this area, and only recently have several studies started to investigate the issue of why people accept and use OB (Al-Ashban & Burney, 2001; Almogbil, 2005; Sohail & Shaikh, 2008; Alsajjan & Dennis, 2010; Al-Somali *et al.*, 2009). One of the main motivation to conduct this study is that the existing studies investigated OB acceptance without taking an account of the importance role of national culture. The existing studies was built on previous effort in other context and other cultures. Therefore, the findings of these studies cannot be relied on academically and practically showing a gap that need to be filled in. For example, design marketing strategies depending on the findings from these studies with ignorance of the role of national culture may result in ineffective strategies. For that reason, the need for designing a tailor made conceptual model taking in account the role of national culture is became a vital issue in technology acceptance in general and in OB specifically. Tailor made conceptual model will result in a more reliable finding that can be used effective academically and practically.

This vital need is supported by the latest study in OB in Saudi Arabia by Alsajjan and Dennis (2010). They suggested a possible impact of national culture in technology adoption in Saudi Arabia. The authors recommend further work to examine the impact of national culture, as well as the impact of gender and other demographics on OB adoption behaviour, especially in KSA, using a larger sample. These issues had not previously been investigated. The present research explores these concerns in order to provide a better understanding of people's acceptance and adoption of technology in the context of OB in Saudi Arabia. It will follow a unique method which is conducting an empirical study first in order to build the most suitable conceptual model. Therefore, designing the conceptual

model will be depending on the results of the qualitative part of the research. The qualitative part will be conducted with Saudis to make sure that the conceptual model will be designed depending on the Saudis themselves suiting Saudi national culture. This research can achieve its aim through posing the following two questions:

1- What are the salient factors affecting user acceptance of technology within the national cultural context of Saudi Arabia.
2- How do these factors relate to each other to affect customers' acceptance of OB.

1.4 Research aims and objectives

The main aim of this research is to explore and investigate the significant factors affecting user acceptance of technology within the national cultural context of Saudi Arabia. The research aim requires the design of a conceptual model to be used as a guide for the banks and relevant institutions involved in online banking adoption and implementation in Saudi Arabia. It is proposed that a well-justified theoretical framework can lead to a well-designed model, as a reference and helping tool, to provide better understanding for both the academics and the practitioners who are interested in technology adoption in general, and OB in Saudi Arabia specifically. To achieve the aim of this research, several objectives should be considered:

a) An investigation of the existing literature in the area of technology acceptance in general and OB specifically, seeking better understanding of the main factors that are held to affect people's behaviours and intentions.

b) Evaluating and investigating the situation in Saudi Arabia in order to establish the most suitable factors that can answer the research question.

c) Designing a conceptual model to better understand the salient factors influencing users' intention to use OB in Saudi Arabia.

d) Evaluating the conceptual model empirically to investigate its ability to explain people's behaviour regarding OB in Saudi Arabia.

e) Drawing conclusions to address the research findings, limitations and implications, to be able to provide recommendations for further research.

1.5 The context of the study

This study explores and investigates the main factors affecting user acceptance of OB within the national cultural context of Saudi Arabia. Research in the field of electronic marketing has played an increasingly important role in marketing performance development (Barwise & Farley, 2005; Brodie, Winklhofer, Coviello & Johnston, 2007; Yan, 2010; Chaffey & Smith, 2013). Online banking marketing is considered to be one of the most attractive fields within e-marketing, and was researched and investigated by Kolodinsky, Hogarth & Hilgert (2004), Khalfan, Al-Refaei & Al-Hajery (2006), Sayar & Wolfe (2007), Alsajjan & Dennis (2010), Yaghoubi (2010) and McWilliam (2012). The reasons for the interest in online banking can be understood; it makes the nature of banking services easier to accomplish online, and leads banks to become more competitive and speed up their processes, to attract customers and encourage them to use OB. As a result, banks welcome and support researchers' efforts to investigate the area further. As regards Saudi Arabia, it has been reported that OB is the best organised and most dynamic e-commerce activity in Saudi Arabia (IT report, 2010). OB in Saudi Arabia may be an appropriate area to start investigating, including the most important factors affecting user acceptance of technology.

The implications of this study can be seen from different angles, and can be classified into two groups: academic implications and practical implications. The expected contributions and implications of the study of technology adoption in general, and in the context of Saudi OB in particular, are discussed in the next two sub-sections.

1.6 Academic contributions

This research aims to provide several important academic contributions. Firstly, as there is a lack of a theoretical model concerning the factors affecting user adoption of technology, especially within the national cultural context of developing countries such as Saudi Arabia, the researcher expects the proposed model to be one of the first models and theoretical frameworks concerning the factors affecting Saudi banks' customers to accept online banking. Secondly, the research aims to construct and propose a model supported by Saudi opinions (through a qualitative empirical study), as well as obtaining support from existing theories and models and the relevant literature in the area of technology acceptance, this to provide a strong supported frame of reference for studying online banking acceptance in other contexts. Thirdly, not only will the study investigate and contribute new relationships between the factors that influence Saudis to accept online banking acceptance, it will also aim to employ Structural Equation Modelling (SEM) to analyse these relationships for a better understanding and explanation of users' behaviours. Using powerful statistical procedures to cope with the expected complexities of the research model, the outcomes of the research are expected to be more reliable. Finally, the research aims to employ important variables from the existing literature in many online domains, not only to answer the research questions, but also to explain the impact of

national culture on Saudi customers; it aims to introduce a comprehensive and parsimonious model for other online contexts in Saudi Arabia, the GCC and other countries with a similar cultural context.

1.7 Practical contributions

One of the basic benefits banks gained from adopting OB is financial cost reduction. With OB, choosing the most suitable place to reach customers is not a huge challenge for banks any more. Local banks are more likely to be global ones that require less effort to reach customers wherever they are based, through OB channels. In addition, the Internet revolution opens locked doors for small financial institutions, to compete with older and bigger banks. Finally, it has become easier for banks to personalize their services in order to increasingly satisfy customers.

Moving towards online banking is not an easy option for banks. Online banking requires websites to be well-designed and maintained, secure, up-to-date *and* attractive. This requires either recruiting a high-wage expert team or outsourcing, which is not pleasing any bank with highly sensitive data. The banks face, not only the challenge of adopting OB, but also the challenge of encouraging customers to accept it. This research contributes practically for banks and the many stakeholders who are interested in adopting online activities in general, and online banking in particular.

The proposed model may be used as a guide to support Saudi banks and financial institutions in their evaluation, and to improve their efforts to attract customers to online banking, and encourage them to adopt any new technology products introduced by them. The framework also proposes to help improve the understanding of banks and other related institutions regarding the determinants of customer attitudes towards accepting new technology. Accordingly they may benefit from improving their ability to introduce more appropriate services and products, with better strategies for understanding how customers behave.

One of the most important expected contributions of this research is to show the high importance of the national culture that affects user acceptance of technology in the context of online banking in Saudi Arabia. New foreign banks, who have not understood Saudi culture yet, may be able to follow new strategies, depending on the research outcomes, to begin their own new online banking businesses successfully. Finally, by taking the proposed model and its variables into consideration, the banks may also be able to improve their online financial services and to develop their strategies to move their customers towards OB services.

1.8 Research process and design

According to Collis and Hussey (2009), any research with a clear aim needs to follow several basic stages, and develop the most suitable process to achieve the set aims. The research process that is followed in this study is based on the "hypothetico-deductive method", which comprises seven steps (Sekaran, 2013). These processes start with

observing the most relevant information from reviewing the existing literature, to identify research gaps and needs. The most important theories and models in technology adoption are investigated using existing studies in OB in Saudi Arabia. Subsequently, the factors affecting people's acceptance of technology that were found in the literature review are investigated, through an empirical study including two focus groups and 8 interviews (discussed in chapter three).

Denzin and Lincoln (2012) argue that focus groups are one of the best methods to improve researchers' understanding of issues under investigation. Tashakkori and Teddlie (2010) argue that focus groups and interviews, in mixed methodology research, are used to improve understanding of the research topic, draw a clear strategy for the following quantitative stage and help to design the questionnaires. Following a study conducted by Sohail and Shaikh (2008), on Saudi banking, this research used focus groups to narrow down the factors discovered in the literature as the most important factors from the Saudi bank customers' point of view. Semi-structured interviews were conducted with experts in the area, in order to be able to understand the current situation in terms of Saudi banking acceptance, which helps to design the proposed conceptual model.

After identifying the most important factors from the literature and the qualitative study, the conceptual model is developed and designed, with "theory formulation" combining the relevant salient factors that affect people's acceptance of OB in Saudi Arabia. The following step was to collect the data through a questionnaire survey which was based on the early stages. Before the last step, data analysis was performed to test the proposed model and its hypotheses, and to explain the role of national culture in people's acceptance

of OB in KSA. The last step is deduction, which interprets the meaning of the results from the data analysis to draw the research conclusions (Figure 1.1). According to Cooper and Schindler (2013), the research journey consists of three main stages: firstly an exploration of the situation, secondly the collection of data, and thirdly the analysis and interpretation of the results. The authors state that the main kinds of research design are exploratory design, causal and explanatory. This research follows Sekaran's (2013) seven-step "hypothetico-deductive method" and Cooper and Schindler's (2013) three main stages along the research journey (Figure 1.1).

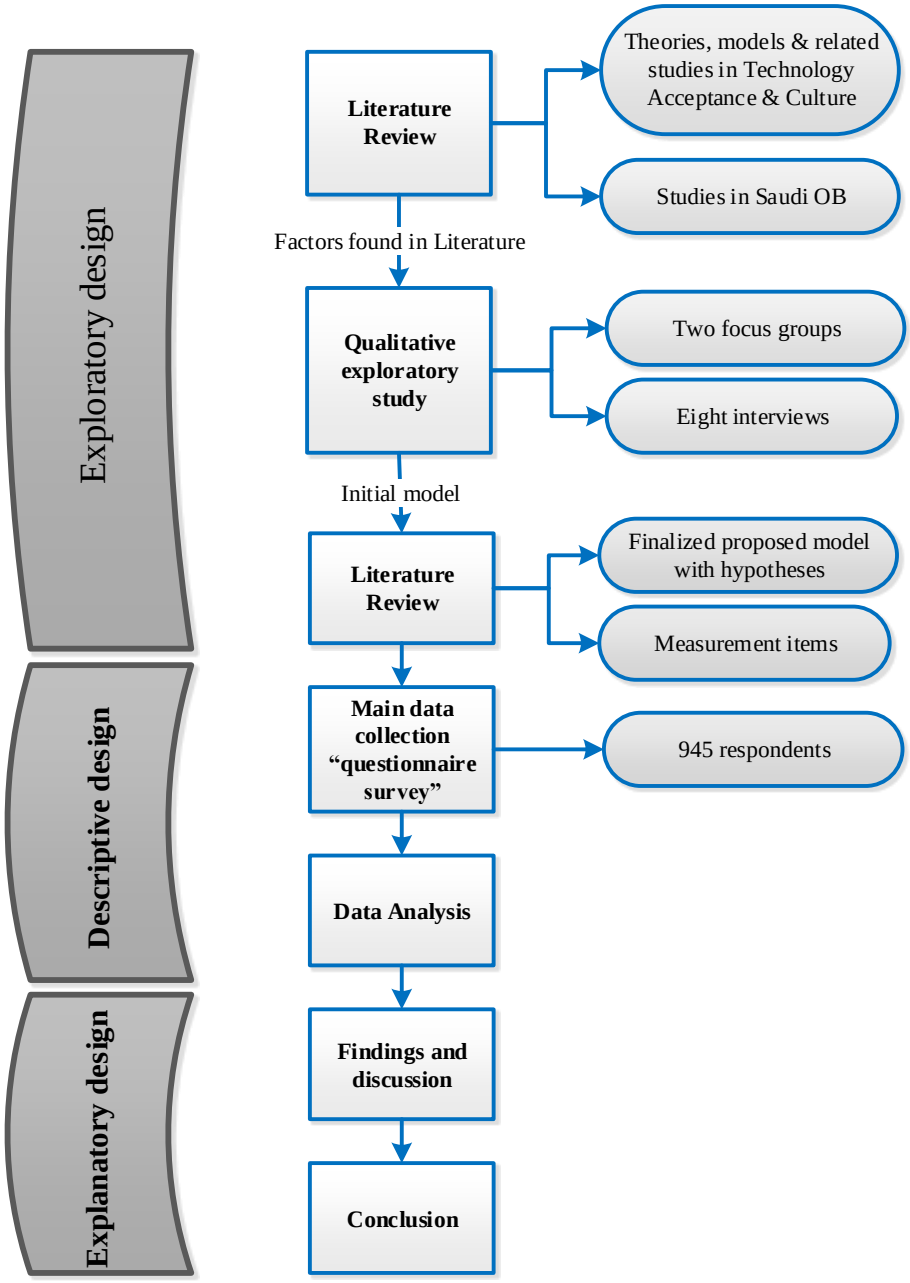


Figure 1.1: Research process & design.

1.9 Research outline

This research presents the stages of work conducted and supporting background knowledge. The structure of the thesis is in seven parts as follows:

Introduction and overview (the current chapter)

The current chapter presents an introduction and background to the research and how it is conducted. The perspectives of marketing, online banking, technology acceptance and culture are presented, and the research questions are introduced. The main aim of the research and objectives are clarified, followed by the research context and justification for conducting the research in the context of OB in Saudi Arabia. The contributions and implications of the study in the area of technology adoption in general, and in the context of Saudi OB specifically, are also discussed.

Literature review (Chapter two)

Having established the aims and objectives of the research, in order to accomplish a well-designed model, the related existing literature will be carefully reviewed in Chapter two. Several models and theories are reviewed, discussed and compared with other relevant research papers. The literature suggests various factors as determinants of people's adoption of technology and OB specifically. These factors are used in a qualitative empirical study, to establish the most appropriate factors that help achieve the research aims and objectives.

The Empirical Study (Chapter Three)

The literature suggested various factors as determinants of people's adoption of technology in general, and OB specifically. It is not ideal for a simple conceptual model to include all these factors to be able to explain customers' behaviour. Therefore, to narrow these factors down, and to identify the factors that did not emerge in the literature, the present study employs an empirical study as a qualitative investigation including two focus groups and eight interviews. The findings from the literature review and the empirical study will be used to shape the theoretical framework in order to develop a conceptual model to explain

the salient factors affecting user acceptance of technology in the context of OB in Saudi Arabia.

Theoretical framework and conceptual model (Chapter Four)

This chapter presents the theoretical framework and proposed model for OB adoption that is used in this study. The theoretical framework is based on the findings previously reviewed in the literature, and is based on an empirical study (data from interviews and focus groups). The framework is used as a foundation to the proposed model for OB adoption.

Research methodology (Chapter Five)

This chapter describes the most appropriate research methodology to help achieve the research aims and objectives. In addition, it shows how the existing knowledge regarding technology acceptance has been reviewed, and how the empirical study (documentary analysis, focus groups and interviews) is designed and conducted, to develop the conceptual model and its hypotheses. The questionnaire survey and distribution methods are discussed in this chapter. Data analysis, including exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structured modelling (SEM) are discussed in detail.

Analysis of the research data (Chapter Six)

This chapter analyses the data that were collected quantitatively. Response rates and related issues are discussed in the first sub-section. The following sub-section introduces the participants. Screening the data and the treatment of missing values are presented in the

third sub-section of the chapter. Descriptive statistics for the model constructs and measured items are presented in the fourth sub-section. The following sub-section describes the results from the exploratory factor analysis. CFA is presented, followed by a final sub-section, which describes the findings from the hypothesis testing.

Research findings and discussion (Chapter Seven)

Chapter seven discusses the findings from Chapter six (the data analysis) and links the findings to the existing literature, as was discussed in Chapters two and four. It begins by providing an overview of the research objectives, followed by a discussion of the key findings from Chapter six, including the descriptive findings and the analysis of the hypotheses, leading to the chapter conclusions.

Research conclusions (Chapter Eight)

In the concluding chapter, an overview and conclusions to the journey of this thesis and areas are covered and presented. The chapter additionally discusses the academic and practical contributions and implications, achieved by the thesis in the area of technology adoption and adoption in general, and in online baking acceptance and usage specifically. The research limitations are discussed, leading to further discussion of research recommended for the future in the area of online banking acceptance, technology acceptance and marketing in general.

Chapter Two Literature Review

2.1 Introduction

In order to reach a good conclusion and to achieve the research goals, the relevant existing knowledge needs to be reviewed from different points of view, and from different angles, to ensure that marketers and other interested academics and practitioners will find it useful. As explained in Chapter one, the main aim of this research is to explore and investigate the important factors affecting user acceptance of OB within the national cultural context of Saudi Arabia. Therefore, three main different areas need to be explored in depth and clarified (see Figure 2.1). These are (a) marketing and its role in online banking; (b) the technology adoption models and theories that can explain people's behaviour towards technology in general and OB specifically; and (c) the cultural theories and frameworks to explain the differences among cultures. The background to Saudi Arabia supports this and contextualises it, and includes information on its financial system, the nature of Internet services and Saudi culture. Accordingly, this chapter provides an in-depth review of the existing literature on these three research topics.

The first area discuss e-marketing and its adoption followed by discussing the nature of online banking, its services and the market, followed by discussion of both the banks' and customers' perceptions on the subject. The second area concerns the theories and models that explain technology acceptance, including the Theory of Reasoned Action, the Theory of Planned Behaviour, Social Cognitive Theory, Innovation Diffusion Theory, the Technology Acceptance Model, the Decomposed Theory of Planned Behaviour, Technology Acceptance Model 2, Augmented TAM and The Unified Theory of Acceptance and Use of Technology (UTAUT). The third section discusses differences across cultures, including cultural theories and frameworks, such as the work of Hofstede

(2001), Hofstede, Hofstede and Minkov (2010) and Schwartz (1994, 1999, 2004), as they have been widely applied in the investigation of users' behavioural intentions concerning the acceptance of technology in diverse cultural contexts. The section concludes with a review of some of the technology adoption studies in different cultural contexts. Finally, the chapter provides background to Saudi Arabia, as the setting of the research; it includes information on its financial system, Internet services and culture (Figure 2.1).

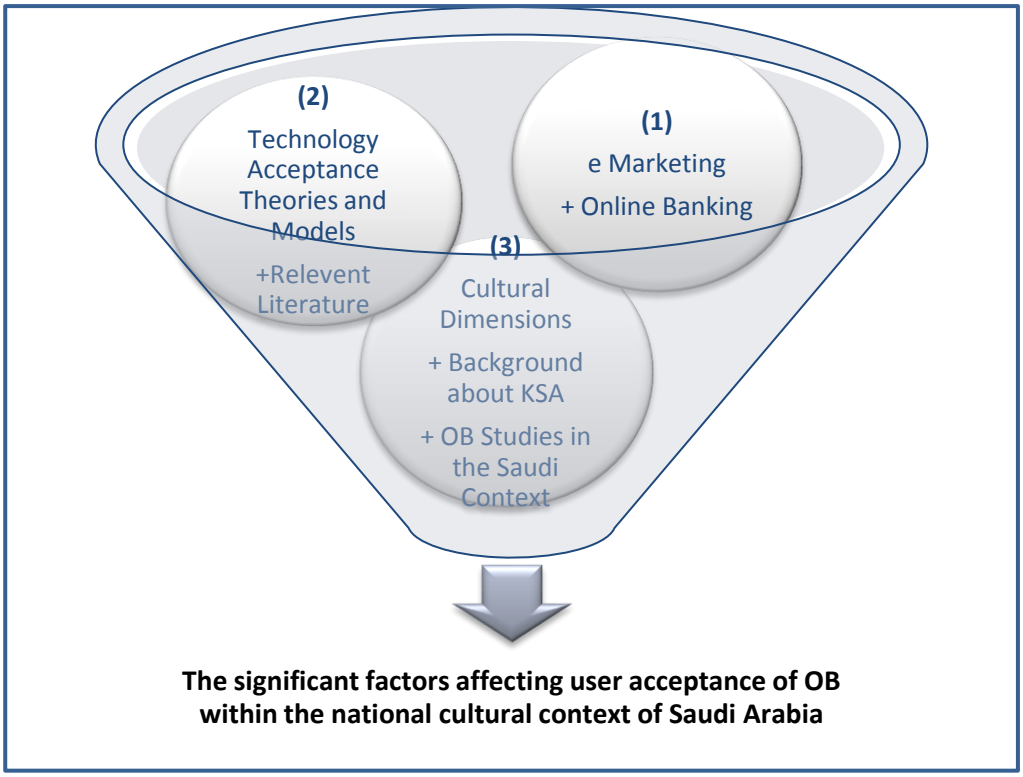


Figure 2.1 The knowledge needed to achieve the research aim.

2.2 Adoption of e-marketing

With increased movement towards online channels, the importance of e-marketing and its impact on marketing performance development has increased (Barwise & Farley, 2005; Brodie *et al.*, 2007; Yan, 2010; Chaffey & Smith, 2013). In 2002, Brodie *et al.* (2007)

investigated 212 American companies to measure their awareness of the importance and the role of electronic marketing coming to the conclusion that "e-marketing is starting to come of age". They reinvestigated those 212 American companies in 2005, to find that more than 70 percent of the companies had adopted e-marketing in their marketing practices. They concluded their report by saying that e-marketing is no longer a new subject, and in the US it has become one of most recognized practices in the markers of the investigated companies.

E-marketing has been defined as *"using the Internet and other interactive technologies to create and mediate dialogue between the firm and identified customers*" (Coviello *et al.*, 2001, p. 26). Therefore, e-marketing is dependent on and related to the development in the technology to facilitate interactivity. In addition, e-marketing can assist mass marketing communication, as well as one-to-one marketing. E-marketing is the main gate to the discussion of online banking from the marketing perspective. Online banking as a marketing channel under the e-marketing umbrella is discussed in the next section.

2.3 Electronic, Internet and online banking

The existing literature investigates electronic, Internet and online banking from several points of view and perspectives. The term Electronic banking (e-banking) is used extensively by both marketing practitioners and scholars. For example, Kolodinsky *et al.* (2004, p. 238) define the meaning of e-banking as "a variety of banking services, starting from the common automatic teller machine (ATM) services and direct deposit to automatic bill payment (ABP), electronic funds transfer (EFT) and computer banking (PC banking)".

From the literature, the term Internet banking can be seen as part of electronic banking, which is also largely used by both practitioners and scholars (Polatoglu & Ekin, 2001; Sathye, 1999; Sayar & Wolfe, 2007; Khalfan *et al.*, 2006; Alsajjan & Dennis, 2010). According to Sayar & Wolfe (2007), Internet banking is described as the completion of banking transactions through Internet technology by bank customers. Nowadays, the majority of banks have websites to allow customers to carry out banking transactions electronically, instead of physically going to traditional on-street branches (Sayar & Wolfe, 2007; Yaghoubi, 2010; McWilliam, 2012).

In addition to the expressions "Internet banking" and "Internet branch", the terms "Online banking" and "Online branches" were adopted in prior research by many practitioners and scholars (Almogbil, 2005; Sarel & Marmorstein, 2004; Flavian, Gunaliu & Torres, 2006; Durkin, 2007; Yaghoubi, 2010; Boon, 2012; Hinson, Madichie & Ibrahim, 2012; McWilliam, 2012). For instance, online banking is explained by Hinson *et al.* (2012) as a system that enables bank customers to accomplish banking transactions outside the banks' traditional branches, using the Internet. Smith (2006, p.19) claims:

> *"Traditional banks through online banking enable customers to perform all routine transactions normally expected by potential customers, such as account transfers, balance inquiries, bill payments, stop-payment requests and some even offer online loan and credit card applications depending on the financial services available".*

From the related literature and the above discussion, it can be seen that the expressions electronic banking, Internet banking and online banking are used interchangeably by

practitioners and scholars. However, the expressions 'online banking' and 'online branches' have gained greater usage in recent research, which leads the researcher to prefer their use in this research. For better understanding of online banking, it is essential to discuss it from different the perspectives, as described in the next section.

2.4 Online banking from different perspectives

Each subject can be seen differently from several angles and different points of view. OB can be understood clearly by discussing different points of view and different perspectives. This section provides just three examples of how different practitioners look at OB, and consider and discuss them. These perspectives are that of new product development, that of information technology and that of marketing communication (Figure 2.3).

Figure 2.2 Online banking from different perspectives

2.4.1 The perspective of new product development (NPD)

From the NPD perspective, online banking is recognized as a new product in the banking sector, and is considered and studied by some scholars and experts in the field (Drew, 1995; Oliveira & Hippel, 2011; Boon, 2012). Oliveira and Hippel (2011) suppose that banks and financial organizations face a big challenge, because of the high speed of innovation in the sector. Therefore, they need to produce new products and services continuously, or develop existing ones. Oliveira and Hippel (2011) link this philosophy of innovation with three main expressions that need to be taken into account in every stage of development: "new technology", "competitive pressures" and "changing customer needs". After interviewing new product managers in North American banks, Drew (1995) found that, although there were dissimilarities in developing financial services and products, the speeding up of the service improvement process was a significant issue to all banks contacted. According to Drew (1995), the main factors that accelerate innovation in the financial sector were found to be strategy, structure, leadership and people.

2.4.2 The perspective of information technology

Information Technology (IT) and Information Systems (IS) have their own perspectives regarding development in online banking services. There are numerous studies discussing the impact of IT and IS on online banking services (Zineldin, 2000; Barrutia & Echebarria, 2006; Sundarraj & Manochehri, 2011). Thirty years ago, Porter and Millar (1985, p. 150) explained the impact of IT on the change in balance of competition as *"changing the industry structure, creating competitive advantages and generating new businesses"*. Zineldin (2000) argues that financial organisations are able to improve relationships with customers by improving bank usage of technology. Barrutia and Echebarria (2006) validate Zineldin's argument, and go further to add that using Internet technologies will

maintain customer relationships greatly. However, there are others that believe that the benefits for banks and profits will not be generated by any change in technology. According to Porter (1985), there are several questions that need to be answered when assessing the benefits of new technology to an organisation and its profit. These questions can be, for example:

1- Does the new technology develop the industry structure in general?
2- Will it be in favour of the firm financially and practically?
3- Will pioneering the adoption of new technology give a firm first mover advantage?

2.4.3 The perspective of marketing communication

Clear efforts have been made by scholars and practitioners to contribute to knowledge from the perspective of marketing communication (Hoey, 1998; Rowley, 2001; Brady, Fellenz & Brookes, 2008; Pérez & del Bosque, 2012). In the early stages of new technology communications, Handy (1993, 2007) advised organisations to be the first to take up the advantage of adopting new technologies in the communications revolution that could shape their future. He added that the adoption of computer-mediation communication would add competitive advantage to any company. More specifically, Internet communication helps organisations to reduce costs, and makes them and their customers more accessible. Comparing communication through the Internet distribution channel with communication through traditional channels shows the benefit of online communication, as it provides cost reduction and other advantages (Pérez & del Bosque, 2012). Having a clear understanding of the increased importance of the Internet has encouraged marketers to consider using it and be strongly involved in it within the organisational marketing mix (Brady *et al.*, 2008).

During the eighties and nineties, academics and practitioners argued about the impact of information and communication technology (ICT) on marketing practices and its implications. They subsequently began to investigate the impact of ICT development and its possible usage in marketing practices. Furthermore, they started to investigate the possibility that making marketing practices rely completely on ICT (Brady *et al.*, 2008).

In the early stage of the Internet, Hoffman and Novak (1996) found that change in Internet communication methods affected the market in numerous ways, such as changing communication with customers from one-to-many methods to many-to-many methods. In addition, Varadarajan and Yadav (2002) found that word-of-mouth, in the Internet age, became an increasingly significant factor in marketing, as it became easier for customers to report their opinions regarding organisations and products. Therefore, banks need to think seriously about using the Internet as the main method to communicate with their customers through OB.

In advising companies, Berthon, Pitt and Watson (1996) expected the Web to be the new e-market; therefore, companies should have the Web as the main platform of communication with their customers. Berthon *et al.* (1996, p. 27) listed the essential goals of using the Internet in the marketing communication mix as: "*giving detailed information and specifications about products; making unknown or inaccessible buying influences, in the past, available now; giving a clear image for the company; increasing customer loyalty for the product and the company; building and maintaining a comprehensive, detailed and updating customer database; and distributing the products*". These

suggestions can help banks to improve their communication marketing strategies through OB websites.

Development in the communication world provides opportunities for companies and banks, but it also introduces threats. In early anticipation, Hagel and Singer (1999) raise the point that, since the development in communications methods allows banks to supply and maintain their services online, other companies in the financial sector will find a new opportunity to compete with big banks. That has been confirmed recently by Hinson *et al.* (2012), who found that there are new Internet-based financial firms making an even greater challenge to traditional banks, as they can compete with low-cost advantages.

According to Barrutia and Echebarria (2006), these new Internet-based financial firms have the ability to cut 60 percent of banks' operational costs. Banks should therefore develop their marketing communications methods to be able to keep existing customers and attract new ones. That can be seen through the efforts that are being made by banks to improve their OB services. This thesis attempts to contribute a better understanding of the factors that improve this essential area of business. While the importance of OB is clear, some banks find it a difficult decision to choose between online or traditional banking. The next section illustrates how some banks struggle to move towards OB methods of service.

2.5 The balance between traditional and online banking

Although awareness of the role of online banking is greater than before, some banks struggle to decide on an appropriate balance between online branches and traditional ones (Hinson *et al.*, 2012). Durkin (2007) recommends that those kinds of banks should be more concerned about the staff's role in traditional branches than the shift to "a

relationship-driven sales culture". The cornerstone in this issue might be a clear understanding of the customers' perceptions about the role of traditional branch staff in maintaining relationships and fulfilling financial services. Selnes and Hansen (2001), Lee (2002) and McWilliam (2012) argue that face-to-face communication is the most appropriate way to start with banks' customers, in order to maintain trust through visual and verbal contact.

Hinson *et al.* (2012) support this, and claim that the main benefit of maintaining social relationships with customers is improved loyalty and commitment towards the bank. They all rely on the philosophy of Dwyer, Schurr and Oh (1987), which assures the important role of socialisation in an encounter that can improve "*complex, personal [and] non-economic satisfactions*". Durkin (2007, p. 84) states that:

> "*it becomes important to examine the extent to which the balance between personalised and remote interaction platforms may require adjustment, depending on customer perceptions regarding the online purchase of financial services products as the complexity of these products varies*".

He points out the key role of face-to-face interaction for certain specific customers, as some banks prefer to maintain relationships with higher net worth consumers, instead of sending them towards online services. To make the most appropriate decision regarding keeping or sending customers to online services, banks need to understand more about the characteristics of online banking and the online market, having a clear understanding of the perceptions of customers (Durkin, 2007). Consistent with Durkin's (2007) suggestion,

the next section discusses the nature of OB services, followed by banks' and customers' perspectives regarding OB.

2.6 The nature of online banking services and the market

The nature of a service and its market can be seen as the main determinants of companies' and customers' behaviour towards it. Therefore, organisations need to understand its services and markets' characteristics in order to understand customers' perceptions towards them. It has been shown that awareness of customers' perceptions regarding a service or market is a cornerstone for developing them (Moon & Kim, 2001; Sayar & Wolfe, 2007; Oliveira & Hippel, 2011; Pelton, 2013).

The Internet and online market can easily be distinguished from the traditional market, as it has different characteristics. These differences force banks to follow special processes and procedures to develop their online services (Boone, 2013). The online market depends mainly on the availability of Internet access, which has shown rapid growth over recent years. In the middle of 2012, Internet users had increased by more than 550 percent since 2001 (Internet World Statistics, 2013), which gives an indication of how the banks had sped up their process of developing online banking services. The huge improvement in mobile communication services makes Internet access even easier than before, through smart phones. Therefore, the market for mobile banking, as part of online banking, has given the banks a golden opportunity to reach customers faster and more easily (Chaffey & Smith, 2013).

It is essential for banks to understand the characteristics of Internet users, especially those who are classified as early adopters (Oliveira & Hippel, 2011). According to Rogers (2010), this type of user will be leaders in the use of new technology, while the rest follow more effortlessly. Those pioneer customers, normally, have some personal traits, such as younger age, higher level of education, leadership skills, higher income and active social life. It has been noted that e-customers are more functional than recreational. Therefore, online banking adopters look at that factor as the main method of determining the nature of their banking transactions (Rohn & Swaminathan, 2004).

As the nature of the Internet market is less personal than the face-to-face environment, its suitability for customers depends mainly on the characteristics of the products and the services provided online (Pérez & del Bosque, 2012). Although the e-Market is appropriate for a huge variety of products and services, its environment is more suitable for intangible or informational goods and services, such as online banking (Chaffey & Smith, 2013). In their early prediction of the future of online market business, Peterson, Balasubramanian and Bronnenberg (1997) argue that intangible products and services are more likely and more frequently to be obtained online. Online banking can be classified in the domain of intangible low cost services, and customers' intention to have these services online is greater than their intention to go for tangible services and products (Vijayasarathy, 2002). As a result, banking services are more apt than other less intangible services for provision in online channels. Having said that, understanding the perceptions of both bankers and customers regarding online banking is essential when adopting and developing online banking services. The next section discusses these two different points of view.

2.7 Online banking from the banks' point of view

One of the basic benefit banks have gained from adopting online banking is financial cost reduction. According to Alsajjan and Dennis (2010), every traditional branch transaction costs from $1.07 to $4.03; a tele-banking transaction costs around $0.54; an ATM transaction from $0.27 to $1.49, while online banking transaction costs around $0.01. In the era of e-commerce, choosing the most suitable place to reach the customers is no longer a big challenge for banks. Furthermore, local banks are more likely to be global, and demand less effort. Banks can reach customers anywhere they are based, through online banking channels (Bamoriya, Bamoriya and Singh, 2013). In addition, the Internet revolution has opened locked doors for small financial institutions to compete with older and bigger banks. It has become easier for banks to personalize their services, in order to increase customer satisfaction. Additionally, indicating customer preferences and anticipating their behaviours has become simpler and easier than before (Wind & Rangaswamy, 2001; Alsajjan & Dennis, 2010; Tidd & Bessant, 2011).

On the other hand, moving towards online banking is not an easy option for banks. For example, online banking requires a well-designed and maintained website to keep it secure, up-to-date and attractive. This task requires either recruiting a high-wage expert team or outsourcing, which is unpleasant for banks. Banks therefore face the challenge to choose either huge investment or sharing valuable data with outsourcers (Tidd & Bessant, 2011). Moreover, some banks maintain their relationships with valuable customers by a

direct face-to-face contact method, which will lose its power by moving those customers towards online banking (Dennis, 2004).

2.8 Online banking from the customers' view point

Customers who adopt online banking look at it as a valuable tool to save time, money and effort. They do not need to go to a street branch to complete their financial transactions, as they can perform them anywhere and at any time (Lal *et al.*, 2013). In addition, it reduces customer stress, removing the need to use their own means of transportation or public services, thus saving time on travel and queuing. Online banking also reduces transport costs, including parking and congestion (Yaya, Marimon & Casadesus, 2011). As the Internet makes comparisons easier for online banking customers, it gives them a golden opportunity to compare and choose among the variety of financial services and products offered by different banks (Ganguli & Roy, 2011). Some customers prefer less social contact, and find online banking the perfect choice to fulfil their financial transactions (Lal *et al.*, 2013).

Although online banking has obvious advantages for customers, their intention to adopt it or re-use it is affected by several factors. For example, one of the main factors preventing customers from adopting or re-using online banking is anxiety over security and privacy issues (Yaya *et al.*, 2011). Some customers prefer to use traditional high-street branches, trusting the bank's employees, advice and help. Social factors, friends and previous

experience are among other factors acting as barriers to the adoption of online banking (Lee, 2002; Alsajjan & Dennis, 2010; Ganguli & Roy, 2011).

From the above discussion, it can be concluded that customer behaviour is not an easy issue for banks to predict and control. Investigating customers' behaviour towards any new technology services in general, and to online banking specifically, has become an important issue for banks. Banks can benefit from the huge research work investigating human behaviour and intentions. The next section presents well-established models and theories regarding people's behaviour and intentions, in order to help banks to design more suitable marketing strategies and persuade their customers towards online banking.

2.9 Theories and models explaining technology adoption

Human behaviour has received a considerable amount of attention from scholars and researchers. They attempt to investigate, explain and predict people's behaviour in different contexts and areas. Whether in general contexts or in technology adoption contexts, the key point is how to control and develop human actions and intentions to act. In the technology context, scholars are investigating the factors that encourage users to adopt a new technology, and other factors that discourage them.

There are several well-known models and theories that have studied human behaviour and intentions, which have received a considerable amount of attention among researchers, whether in the area of technology or other contexts. Some models and theories began in the social psychology field, and were used to account for people's acceptance and usage of

technology. For example, the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and Social Cognitive Theory (SCT) were used widely to explain and investigate technology adoption, although they were well established in the field of social psychology.

However, well-known models were established and designed to explain and investigate people's active intentions and towards adopting and accepting technology, such as the Innovation Diffusion Theory (IDT) and Technology Acceptance Model (TAM). Moreover, some scholars modified, compared or extended one or more of these models and theories to produce more accurate ones, such as the Decomposed Theory of Planned Behaviour (DTPB), Technology Acceptance Model 2 (TAM2), Augmented TAM and The Unified Theory of Acceptance and Use of Technology (UTAUT).

Each model, theory and modified or extended model or theory has its special point of view, which provides researchers with different ideas and benefits. For that reason, and to meet the research objectives, it is essential to study these models and theories and the related literature, as their theoretical concepts will assist in designing the theoretical framework, and then the design of the proposed research model to help answer the research questions.

2.9.1 The theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) is one of the oldest theories from the field of social psychology, and it is used to explain people's acceptance and usage of technology. From the early 19th century, scientists from the field of social psychology have tried to investigate and describe the impact of individuals' attitudes on their behaviour (Al-Qeisi,

2009). In laboratory settings, Fishbein and Ajzen began a research program to try to predict behaviour. The main goal was to introduce a theory that is able of anticipating, explaining, and controlling people's behaviour (Ajzen & Fishbein, 1980). In 1967, they were able to introduce the Theory of Reasoned Action (TRA), which was developed and refined thereafter by Fishbein and Ajzen themselves, and by other scholars.

The main assumption of TRA is that people's actions are reasoned and rely on the available information that they have. According to TRA, people think about their actions and their implications before they make a decision to engage in a given behaviour (Ajzen & Fishbein, 1980). TRA assumes that the main factor determining people's behaviour is Behavioural Intention (BI) rather than attitude. BI is determined by attitude towards behaviour and subjective norms (Figure 2.4).

Figure 2.3 Theory of Reasoned Action (TRA)

The first factor affecting BI is attitude, and, according to Ajzen and Fishbein (1980, p.35), attitude towards a specific behaviour can be referred to "*the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question*". They show that predicting people's attitude towards an action more accurately depends on

knowledge of the people's beliefs and evaluation of those beliefs. The second factor affecting BI is Subjective Norms (SN), which focuses on the impact of the social environment on people's behaviour. Ajzen and Fishbein (1980, p.41) define subjective norms as "*the person's perception that most people who are important to him/her think that he/she should or should not perform the behaviour in question*". TRA assumes that the perceived expectation of specific referent individuals or groups and the person's motivation to comply with these expectations are the main determinant of the subjective norm. Both attitudinal factors and normative factors have direct impacts on BI. According to TRA, intention can be seen as "*an indicator of a person's readiness to perform certain behaviour"*, which is considered as the immediate antecedent of behaviour (Ajzen & Fishbein, 1980).

TRA is widely used in the literature on technology adoption, to investigate and explain people's behaviour regarding technology adoption (Ajzen, 1991; Venkatesh, Morris, Davis & Davis, 2003). However, some scholars have found limitations in the use of TRA to predict and explain people's behaviour (Ajzen, 1985; Davis, Bagozzi & Warshaw (1989). According to Davis *et al*. (1989), using the theory of reasoned action to predict people's actions assumes that attitude of person and his/her intention should agree on actions, time-frame and target. The main limitation of TRA is the assumption that behaviour is under volitional control. Therefore, only pre-meditated behaviour can be explained by TRA, while it does not explain unconsciously considered action or any unreasonable behaviour (Ajzen, 1985). The philosophy of TRA will help to develop a better understanding for the researcher to investigate the salient factors affecting OB in the Saudi context, by providing him with an explanation as to how subjective norms with attitude interact with intention to control people's actions. This understanding needs to be improved by further investigation

of other theories, such as the theory of planned behaviour, as will be discussed in the next sub-section.

2.9.2 Theory of Planned Behaviour (TPB)

The theory of Planned Behaviour (TPB) was introduced by Ajzen (1985) to avoid the limitations of TRA. Therefore, TPB can be seen as an extension of TRA. The main predictor for people's action in TPB is their intention, exactly as in TRA (Ajzen, 1991). When TRA gaps and limitations are removed, TPB includes people's actions that happen without their volitional control. Consequently, the key difference between TRA and TPB is the addition of the Perceived Behavioural Control (PBC) factor. PBC is added to make a direct impact on both intention and behaviour, and it has an indirect impact on behaviour through intention. TPB is added to PBC to generate more accurate relationships among beliefs, attitudes, intentions and behaviour, in order to predict and explain people's actions (Figure 2.5). The main purpose of adding PBC to TPB is to explain the situations where people have less control over their behaviour (Ajzen, 1991). According to Mathieson (1991), TPB was designed to explain and predict people's behaviour across several contexts, and can be used in the context of technology adoption.

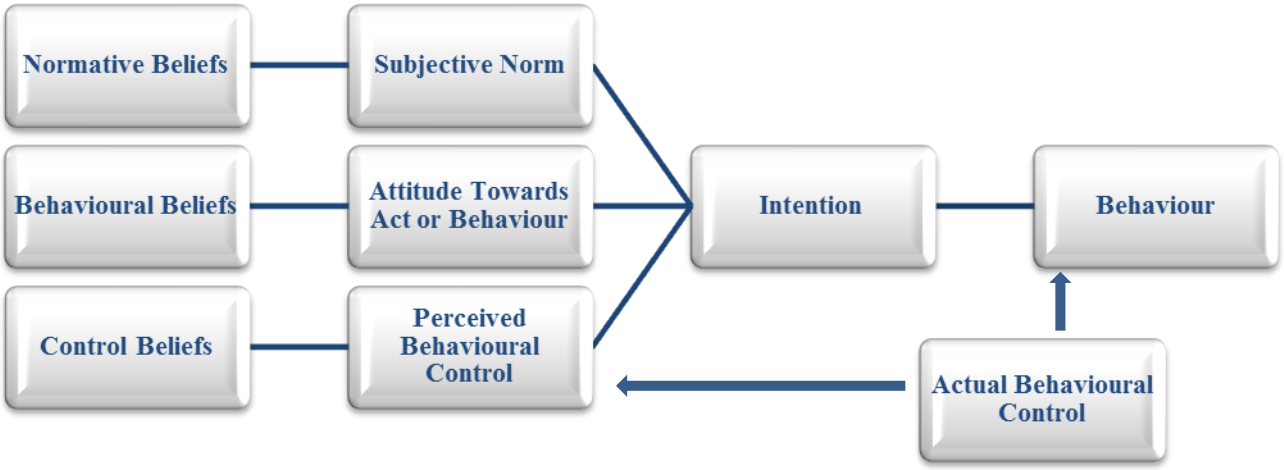


Figure 2.4 Theory of Planned Behaviour

According to TRA, intention can be used alone to explain and predict people's behaviour, if they have complete control over their behavioural performance. However, perceived behavioural control needs to be used to explain and predict people's actions when the intention alone becomes insufficient to explain and predict behaviour (Ajzen, 1991). PBC is more accurate in predicting people's actions in some situations; however, both models are significant in explaining and predicting people's actions and behaviour, directly or indirectly.

In TPB, people's intentions and behaviours are determined by what is called "salient beliefs": behavioural beliefs, normative beliefs and control beliefs. Ajzen (2002), describes those three kinds of beliefs as:

> "*beliefs about the likely outcomes of the behaviour and the evaluations of these outcomes (behavioural beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may*

> *facilitate or impede performance of the behaviour and the perceived power of these factors (control beliefs)*".

There is a salient construct (Actual behavioural control) added to TPB, which has a direct impact on both behaviour and perceived behavioural control. Actual behavioural control can be seen as a measure for the skills, resources and other basics requirements that people have, to act in a given behaviour (Ajzen, 2002).

TPB faced some criticisms, such as the fact that construct PBC in TPB is not a new addition, as it existed in Triandis' (1979) model of interpersonal behaviour, as the perception of facilitated conditions (Ajzen, 2002). TPB is additionally criticized, as it assumes people to be motivated to do a specific behaviour, besides assuming no differences between participants' belief structures regarding a given behaviour (Taylor & Todd, 1995). Furthermore, TPB was designed in a western culture which make it less suitable for eastern culture in general and Saudi Arabian culture specifically. Although TPB has some limitations as discussed above, its philosophy helps improving a better understanding to investigate the salient factors affecting OB in the Saudi context, by providing an explanation as to how its constructs interact with intention to control people's actions. For better understanding of customers' behaviour and how to anticipate their action, social cognitive theory is discussed in the next sub-section.

2.9.3 Social Cognitive Theory (SCT)

Social Cognitive Theory (SCT) was introduced by Bandura (1986) as "*the social foundations of thought and action*"; it was constructed on previous theoretical models and

theories of sustainable consumption. Bandura, in his theory, looks at people's actions as the interaction of personal, behavioural and environmental factors (Figure 2.6). According to Phipps *et al.* (2013), the SCT framework offers an active perspective on sustainable consumption by discovering the collaborating nature of personal, environmental and behavioural factors of consumption.

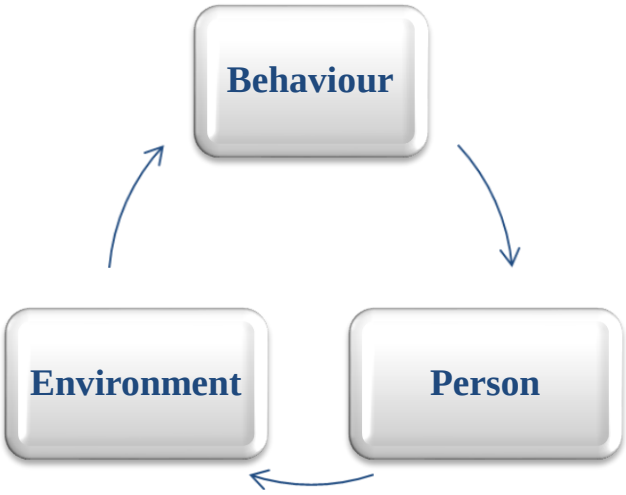


Figure 2.5 Social Cognitive Theory (SCT)

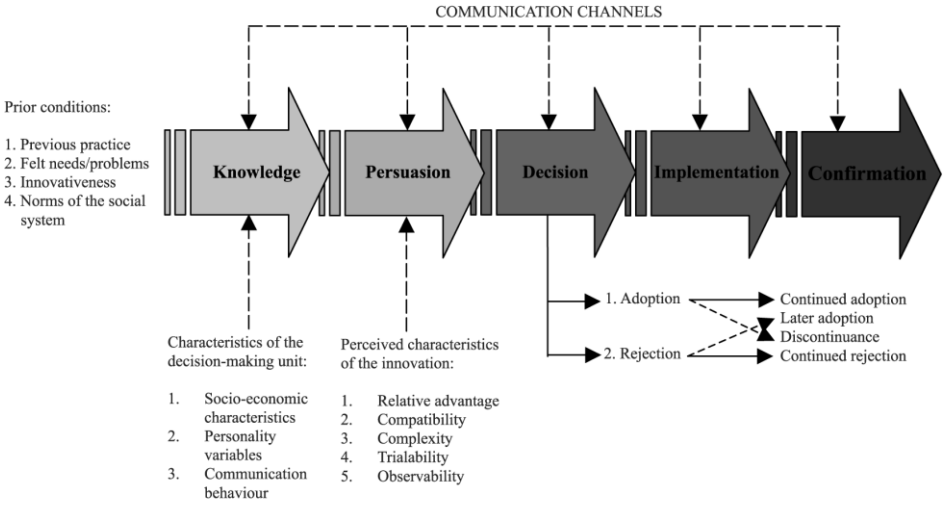
Social cognitive theory integrates the concept of "reciprocal determinism", in which the feedback loop created by behavioural, personal and environmental factors reciprocally affect each other (Phipps *et al.*, 2013). In other words, these exchanges produce what Bandura calls "triadic reciprocality". Bandura (1986) looks at the personal factors of form of cognition, affect and biological events. Bandura highlights the importance of cognition as a critical player in shaping people's ability to see reality and to perform behaviours. Therefore, researchers benefit from SCT, as they can explain and predict people's behaviour in general, and in the context of technology adoption in particular. Chapter four

explains how SCT adds value to the present research, by classifying the factors influencing BI to accept OB.

2.9.4 Innovation Diffusion Theory (IDT)

Innovation diffusion models and theories were established in the early 19th century. The Innovations Diffusion Theory (IDT) was further developed in the early 50s, to define and illustrate the systematic process to make innovation decisions. Since then, researchers have developed and contributed to the innovation diffusion theory, until Rogers introduced its final version (Steele & Murray, 2004). Rogers' innovation theory looks at innovation as an idea generated by people or organisations. There are five stages in the innovation-decision process, as follows: it starts with a first idea for an innovation; it forms an attitude towards it; then it makes a decision to adopt or reject it; it is followed by the implementation of the new idea; and it ends with a confirmation of the decision (Rogers 2010).

IDT assumes that the innovation decision process starts after first understanding and gaining some *knowledge* about how it will work. This understanding and gained knowledge will develop either a positive or a negative attitude towards any innovation leading to a certain stage of *persuasion.* Then a *decision* will be ready to be taken, with the people involved in the activities requiring either to accept or to reject the innovation. After innovation, people arrive at the *implementation* stage followed by the final stage, which is *confirmation,* where people either support the innovation decision that they made, or revise the decision, after new information or several factors have changed their attitude (Rogers 2010).



Source: After Rogers (1995)

Figure 2.6 Roger's Innovation-Decision Process (Steele & Murray, 2004)

Rogers' five stages involve mutual interaction; however, each stage has its own attributes (Figure 2.7). For example, the persuasion stage has five attributes that persuade people to adopt the innovation. These attributes are: relative advantage; compatibility; complexity; trialability and observability. Rogers (2010) explains relative advantage as the degree to which people think the innovation is better than the existing idea. Compatibility is explained as the degree to which people believe the innovation is consistent with their values, past experiences and needs. Complexity is explained as the degree to which people believe the innovation is difficult to understand and use, which may have a negative impact on the innovation's rate of adoption. Trialability is "the degree to which an innovation may be experimented with on a limited basis". Finally, observability is "the degree to which the results of an innovation are visible to others". These elements have been tested and used wildly in the literature to explain and predict people's adoption of new technology in general (Lee, Lee & Eastwood, 2003; Lee, Hsieh & Hsu, 2011) and electronic banking in specific (Daniel, 1999; Howcroft, Hamilton & Hewer, 2002; Liao & Cheung, 2002; Gerrard & Cunningham, 2003; Kolodinsky *et al.*, 2004). Although IDT

helped the researcher to develop his understanding of people intention and action regarding innovative products and services, it has two main limitation that it is not designed specifically for technology and it was designed and tested mainly in the western countries. Therefore, designing a model more suitable for technology and the eastern culture become a vital issue. The first model designed for technology acceptance was the technology acceptance model, which is discussed in the next sub-section.

2.9.5 The Technology Acceptance Model (TAM)

In 1986, the Technology Acceptance Model (TAM) was introduced by Fred Davis in his PhD thesis. However, the main introduction for TAM was by Davis (1989) himself, in a published paper, and by Davis *et al.* (1989) in another paper. Davis used the Theory of Reasoned Action (Fishbein & Ajzen, 1975) to develop his model of TAM. The main difference between TAM and TRA is that perceived ease of use (PEOU) and perceived usefulness (PU) determines the attitude, intention and then action in TAM, while a person's actions and intentions are determined by the person's attitude (A) and subjective norm (SN) in TRA (Figure 2.8). According to Davis *et al.* (1989), the main aim of TAM was to become more specific in technology, to understand the relationships between two kinds of beliefs: Perceived ease of use (PEOU) and Perceived usefulness (PU) on the one hand and actual computer usage behaviour on the other, which is determined by users' intentions. As TAM identifies the determinants of technology acceptance, it can be used to explain or to predict a person's behaviour regarding a wide range of technology (Davis *et al.*, 1989).

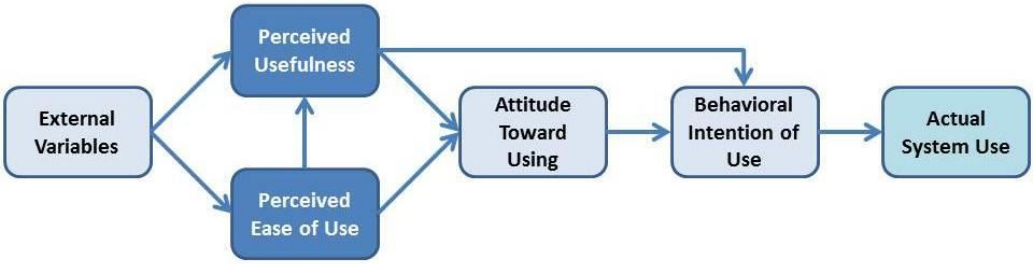


Figure 2.7 Technology Acceptance Model (TAM)

The purpose of TAM was to explain the antecedents of a person's computer acceptance and his/her behaviour (Davis *et al.*, 1989). TAM was developed over several decades, starting from the Davis PhD thesis in 1986. Davis (1986) conducted analysis for the two beliefs (PEOU and PU) constructs with an initial set of 14 items for each one. Davis (1986) excludes the behavioural intention (BI) variable, which is a key construct in the theoretical fundamental TRA, from his TAM model. According to Davis (1986), the main reason for ignoring BI is that intention reflects the decision that people have made through a long process and over a significant time period. However, in the main public introduction to TAM by Davis (1989) and Davis *et al.* (1989), BI was re-instated to the final TAM model (Figure 2.8).

TAM was developed and validated as one of the best predictors to explain human behaviour, regarding technology acceptance. Its two theoretical constructs (PU and PEOU) were assumed to be essential factors in predicting the usage of new technologies (Beaudry & Pinsonneault, 2010). However, as with other theories and models, TAM faced some criticisms. One of the main criticisms of TAM was made by Bagozzi (1992), who states that, as TAM assumes that when a person has an intention to act, he / she will act with no restriction.

However, people face several barriers when trying to do what they have an intention to do, for example, limitations in time, money and capability, besides environmental or organisational limitations, which can be barriers for people to act (Bagozzi, 1992). Although there is no totally perfect model to explain and predict people's behaviour, TAM became one of the best-established models in the field to predict people's acceptance for new technology (Venkatesh & Davis 2000, Gentry & Calantone 2002; Beaudry & Pinsonneault, 2010).

There are several reasons behind the widespread use of TAM, such as, its simplicity, parsimony and robustness (Venkatesh & Bala, 2008; Abbasi, Chandio, Soomro & Shah, 2011; Lee *et al.*, 2013). Although TAM has been validated and its constructs (PU & PEOU) in prior research, there is a huge argument about TAM's core constructs, which may not be sufficient to predict user behaviour across different contextual and technologies settings (Venkatesh & Davis 2000; Moon & Kim 2001; Gefen *et al.*, 2003; Wang *et al.*, 2003; Karahanna & Straub, 2003; Abbasi *et al.*, 2011). Therefore, this study will develop a model which can fill in the gap especially for the Saudi national culture and OB context.

Following these five theories and models (TRA, TPB, IDT, SCT and TAM), researchers started to develop, compare or combine one or more of them for better understanding of human reactions towards technology. The next sub-section discusses one of them: the decomposed theory of planned behaviour.

2.9.6 The Decomposed Theory of Planned Behaviour (DTPB)

Taylor and Todd introduced the Decomposed Theory of Planned Behaviour (DTPB) in 1995. Through their model, Taylor and Todd (1995) explored people's beliefs regarding attitudes, subjective norms and perceived behavioural control, by decomposing them into detailed belief dimensions (Taylor & Todd 1995). According to DTPB, BI is the main direct determinant of actual behaviour. The other TPB original constructs (behavioural attitude, subjective norms, and perceived behaviour control) have an indirect impact through BI (Figure 2.9).

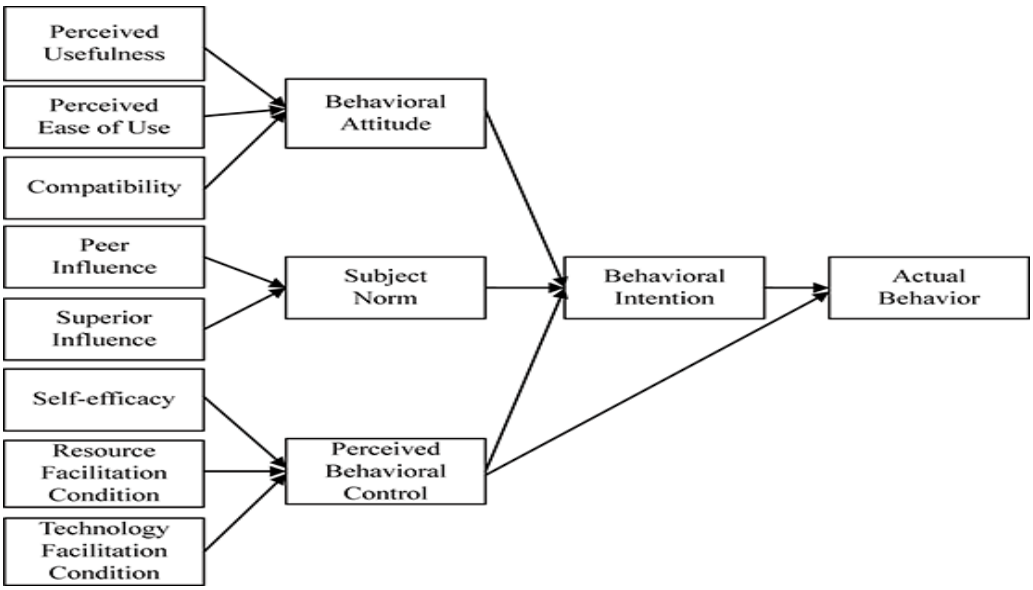


Figure 2.8 Decomposed Theory of Planned Behaviour (DTPB)

Taylor and Todd (1995) decomposed belief in behavioural attitudes into three constructs: PU, PEOU and compatibility. Subjective norm was divided into two factors: peer influence and superior's influence. Taylor and Todd (1995) differentiate between peer influence and superior's influence, as they found that they have a different impact on people's normative beliefs and intentions to accept a technology.

Taylor and Todd (1995) decompose the belief of perceived behaviour control into three factors: Self-efficacy, Resource Facilitating Conditions and Technology Facilitating Conditions. DTPB has the capability to explain usage behaviour, even though it is a less parsimonious model compared to TPB (Yaghoubi, 2010). According to Sadaf, Newby and Ertmer (2012), DTPB offers a comprehensive method to explain and to predict the impact of people's attitudes, subjective norms, and perceived behavioural control on their intentions to use a technology. This research benefited from Taylor and Todd's work through better understanding of the extended role of the social influence. Although Taylor and Todd (1995) find TPB and DTPB can give good explanation than TAM, they require researchers to use more caution in the readings of the findings because of the model's complexity. They therefore introduced a new model, by improving TAM, as discussed in the next sub-section.

2.9.7 Augmented TAM

It can clearly be seen that TAM only includes the constructs of PU and PEOU. Therefore, TAM does not measure the impact of social and other control constructs on people's intentions and behaviour, while those constructs have a significant impact on technology acceptance and usage, as in TPB (Mathieson, 1991; Ajzen, 1991; Taylor & Todd, 1995). The constructs of subjective norm and perceived behavioural control were added to TAM by Taylor and Todd (1995), to introduce a new model called Augmented TAM. Taylor and Todd (1995) wanted this new model to offer a comprehensive explanation and prediction of people's technology acceptance through significant factors (Figure 2.10).

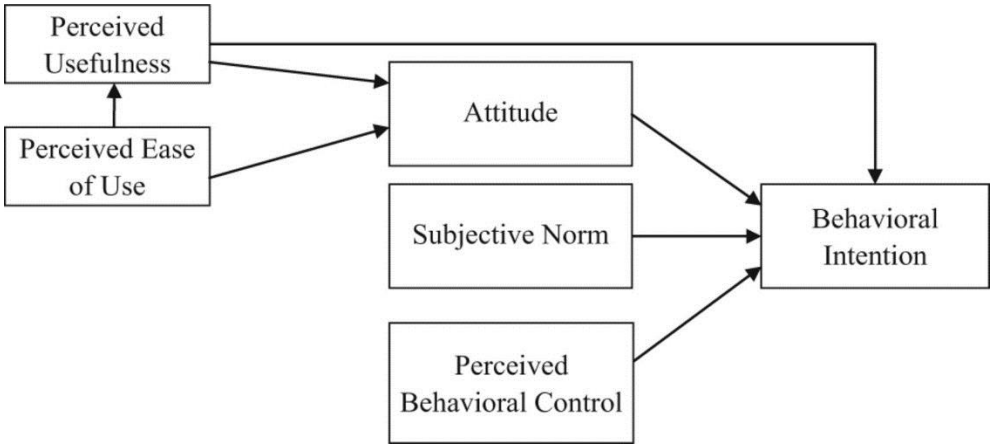


Figure 2.9 Augmented TAM (Taylor & Todd, 1995)

Taylor and Todd (1995) found that the impact of the constructs on intentions were significant for both experienced and inexperienced participants, which led others to arrive at the conclusion that augmented TAM would be able to predict people's behaviour before they used a new technology. TAM would give a golden opportunity to organisations using augmented TAM to explain and predict their customers' behaviour, whether or not they were familiar with the technology. Although augmented TAM add a new concept to the technology acceptance, its main limitation is that it was not designed specifically for the context of Saudi Arabia. Therefore and to address the limitation of augmented TAM, this research will design an empirical study to choose the most important factors that impacting people acceptance of OB. Venkatesh and Davis (2000) also developed TAM into TAM2, for better understanding of people's behaviour regarding technology, as discussed below.

2.9.8 Technology Acceptance Models 2 and 3 (TAM2) & (TAM3)

In 2000, Venkatesh and Davis (2000) introduced TAM2 as an extension of the original TAM. Venkatesh and Davis aimed to develop and extend the original TAM, by including additional factors that could better explain the impact of social influence and cognitive

instrumental processes on PU and intention. In addition, they aimed to investigate the impact of users' experience over time with technology on their intention to accept or use this technology. According to Venkatesh and Davis (2000), PU is a key factor that needs to be understood with its determinants, in order to be able to design more suitable interventions that would accelerate users' acceptance and usage of a technology.

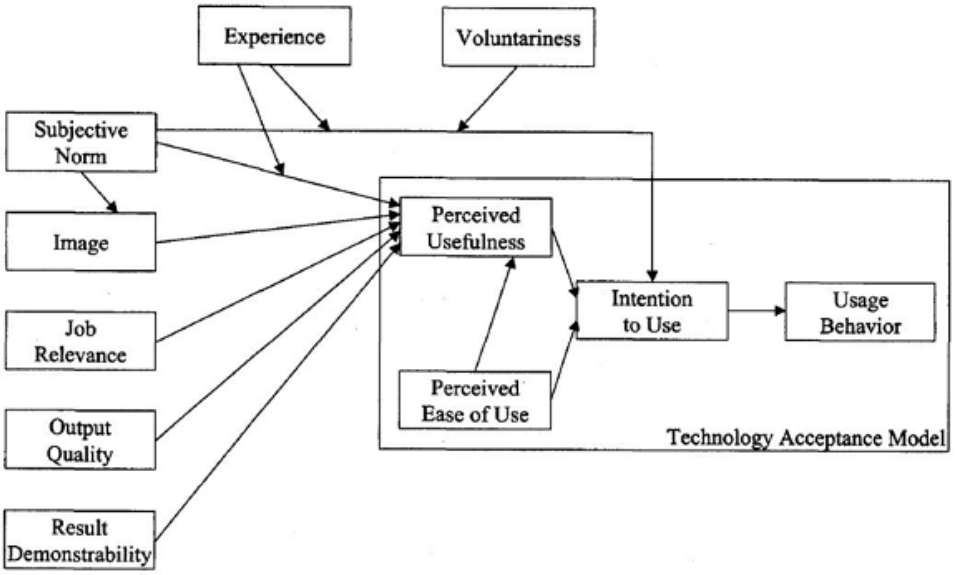


Figure 2.10 TAM2 (Venkatesh & Davis 2000)

Venkatesh and Davis (2000) collected longitudinal data from four organisations regarding four technology systems, in order to test their extended model TAM2 (Figure 2.11). They made tests on two voluntary usage systems and two mandatory usage systems. In every organisation, the model was measured three times (pre-implementation, one month post-implementation, and three months post-implementation), and all of these measurements for all organisations supported TAM2. According to Venkatesh & Davis (2000), all the added constructs (voluntariness, subjective norms, image, job relevance, output quality and result demonstrability), as well as PEOU significantly influenced users' intentions and usage behaviour. However, researchers sought further explanations and predictions for

customers' acceptance and usage of technology; therefore, Venkatesh and Bala (2008) further developed TAM into TAM3.

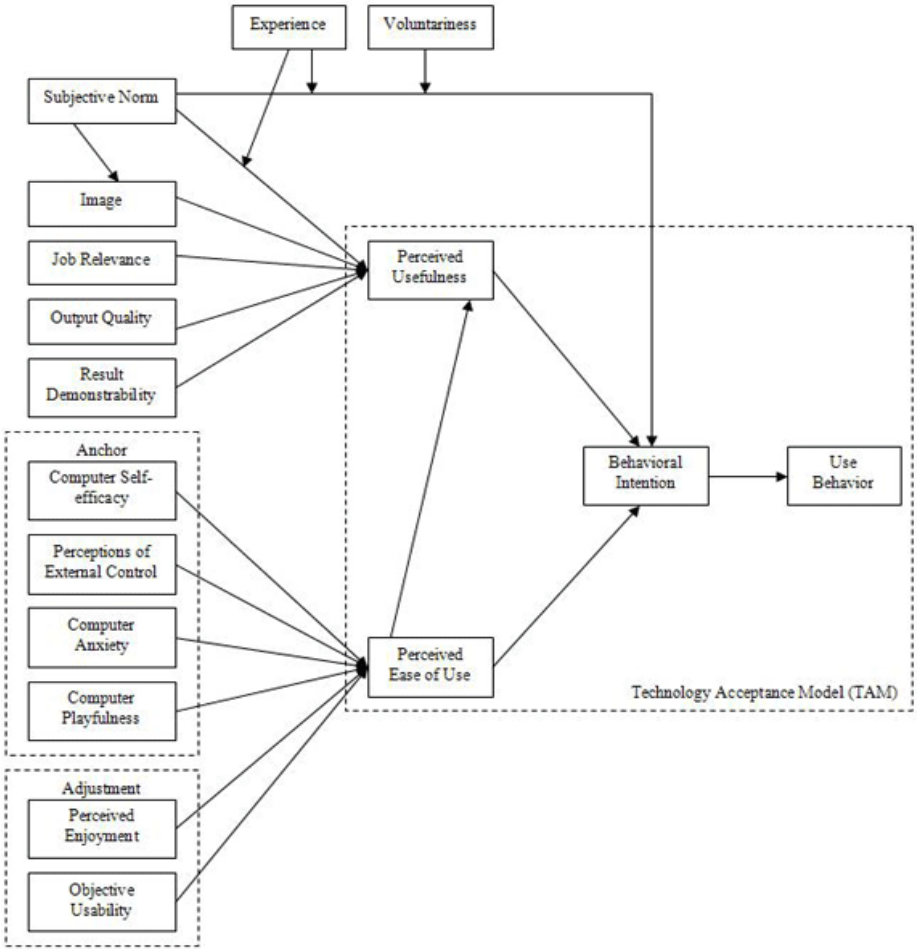


Figure 2.11 TAM3 (Venkatesh & Bala, 2008)

Venkatesh and Bala (2008) hypothesized three more relationships that had not been added and tested by Venkatesh (2000) and Venkatesh and Davis (2000), in TAM2. With these new suggestions, Venkatesh and Bala (2008) introduced what is called TAM3 (Figure 2.12). They raised the key role of experience in moderating the relationship between PEOU and PU. In addition, experience would moderate the relationship between computer anxiety and PEOU. Finally, experience would have a significant impact on the relationship between PEOU and BI (Venkatesh & Bala, 2008). Besides improving TAM2, Venkatesh

and Bala (2008) added more constructs, such as Computer Self-efficacy, Perceptions of External Control, Computer Anxiety, Computer Playfulness, Perceived Enjoyment and Objective Usability, for better understanding of people's behavioural control (Figure 2.12). Although TAM2 and 3 add a new concepts and improve the explanation of people behaviour regarding technology, they have some complexity and were built in an environment and culture differ from the Saudi culture. This research are trying to design a tailor made conceptual model which will be able to explain people actions in the context of OB in Saudi Arabia through following an empirical study to choose the most suitable factors impacting OB acceptance. It is clear that new researchers in the area are increasingly trying to explain and predict people's behaviour regarding new technology acceptance, as this research is trying to do. The next sub-section presents one of the latest theories that attempt to predict people's behaviour as regards technology.

2.9.9 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) was introduced by Venkatesh *et al.* (2003). UTAUT consist of eight constructs, four of which are core determinants of user acceptance and usage of technology, the rest being moderators. The four main determinants of intention and usage in UTAUT are: performance expectancy; (equivalent to PU in TAM); effort expectancy (equivalent to PEOU in TAM); social influence; and facilitating conditions while the moderators are: gender, age, voluntariness, and experience (Figure 2.13).

Theoretically, Venkatesh *et al.* (2003) introduced a new view for the impact of the chosen constructs on intention and behaviour, which changes over time by moderating the relationships in UTAUT with age and experience. As will be suggested in a later sub-

section, age has not received enough consideration in the literature on technology acceptance. UTAUT investigated it and found it to be a key moderator for all model relationships. UTAUT investigates the role of gender on relationships, and finds it to be one of the key moderators that influence the impact of performance expectancy, effort expectancy and social influence on BI (Venkatesh *et al.*, 2003).

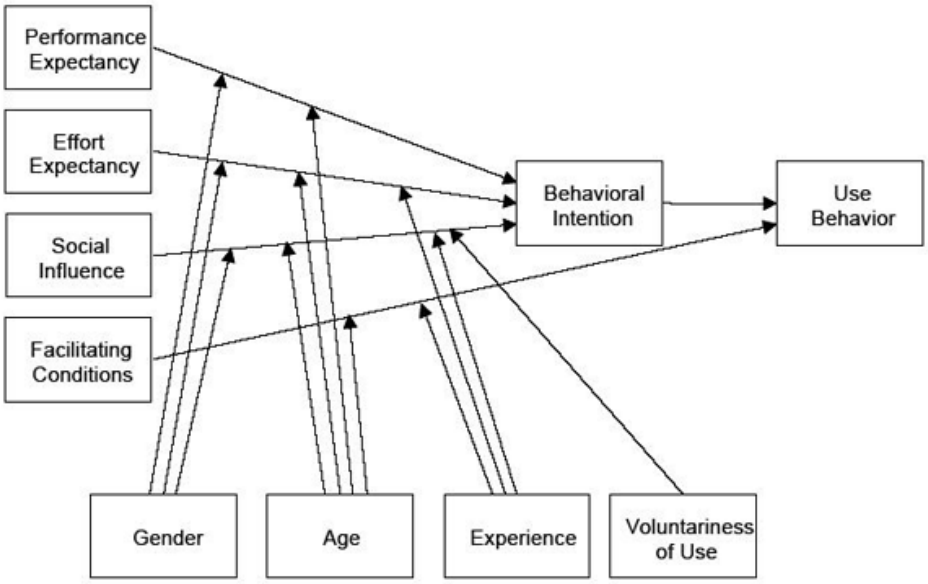


Figure 2.12 Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003)

Venkatesh *et al.* (2003) emphasise the importance of the roles of the tested moderators: age and gender, and their interactions with the observed factors that impact people's intention to take a specific action. The findings recommend further effort to be made to investigate the role of age, gender and other demographic variables on people's actions. The demographic variables in the literature will be investigated in a later section (2.14). The philosophy of UTAUT helped to develop a better understanding for the researcher to investigate the salient factors affecting OB in the Saudi context, by providing him with an

explanation as to how UTAUT factors and moderators interact with each other to impact people's actions. However, an effort need to be done in order to design a model suiting Saudi context more and answering the research questions. This can be done in this research through applying an empirical study before designing the model and choosing the most important factors impacting people actions regarding accepting OB.

The theories and models discussed above used thirty-three factors to explain and predict people's behaviours. These factors are too many to be included in a parsimonious model explaining and predicting the acceptance of OB in Saudi Arabia. Moreover, some of these factors are less relevant to the Saudi cultural context. Therefore, these factors (Table 2.1) will be investigated and discussed further in the empirical study (Chapter three), to obtain the most important factors in answering the research questions.

Table 2-1 Constructs used by the discussed theories and models

Factors Influencing Technology Adoption Behaviour		
Attitude	Facilitating Conditions	Performance Expectancy
Behavioural Control	Image	Personal Factors
Behavioural Factors	Job Relevance	Relative Advantage
Behavioural Intention	Objective Usability	Resource Facilitating Conditions
Compatibility	Observability	Result Demonstrability
Complexity	Output Quality	Self-efficacy
Computer Anxiety	Peer Influence	Social Influence
Computer Playfulness	Perceived Ease of Use	Subjective Norm
Computer Self-efficacy	Perceived Enjoyment	Superior's Influence
Effort Expectancy	Perceived Usefulness	Technology Facilitating Conditions
Environmental Factors	Perceptions of External Control	Trialability

2.10 The role of demographic variables

Numerous studies have evaluated the demographic factors impact on technology adoption, from the early stages of the introduction of technology up until the present time (Leblanc, 1990; Abdul-Muhmin, 1998; Venkatesh & Morris, 2000; Venkatesh *et al.*, 2003; Wixom & Todd, 2005; Porter & Donthu, 2006; Rogers, 2010; Venkatesh, Thong & Xu, 2012). Better understanding of the demographic differences between users and non-users and their impact on intentions helps organisations to reach strategic goals through customers (Venkatesh *et al.*, 2012). According to Morgan (1986) and Dwivedi and Williams (2008), demographic variables can be used as descriptive variables as well as explanatory variables. The next three sub-sections discuss three demographic variables, namely, gender, age and education level.

2.10.1 Gender

Several authors have investigated the impact of gender on technology acceptance (Leblanc, 1990; Gefen & Straub, 1997; Venkatesh, Morris & Ackerman, 2000; Venkatesh *et al.*, 2003; Porter & Donthu, 2006; Venkatesh *et al.*, 2012). It is clear that the role of gender in the adoption of technology is significant. Venkatesh *et al.* (2003) drew attention to the significant role of gender in impacting people's intention to perform specific actions. Venkatesh *et al.* (2000) further believe that gender is a salient factor impacting technology usage, finding in their study that males use computers more than females.

2.10.2 Age

The impact of age on technology acceptance similarly has been investigated by several authors (Venkatesh & Morris, 2000; Venkatesh *et al.*, 2003; Rogers, 2010; Venkatesh, *et al.*, 2012). The majority of these studies found clear evidence to suggest the significant role of age on technology acceptance and usage. Venkatesh *et al.* (2003) raise the important role of age in influencing people to accept and use new technology. Rogers (2010) found that pioneer customers adopting new technology are normally younger. This shows clear evidence of the significant role of age on OB acceptance, which needs to be further investigated.

2.10.3 Education Level

Researchers have paid great attention to the role of education level on technology acceptance, to give better explanations and predictions of interactions regarding new technology (Venkatesh *et al.*, 2000; Choudrie & Lee, 2004; Dwivedi & Williams, 2008; Rogers, 2010). They found that the higher the level of education that a person has received, the more likely he / she is to accept and adopt new technology. Venkatesh *et al.* (2000) found a significant and positive relationship between a person's level of education and his / her usage of technology. Likewise, Rogers (2010) found that pioneer customers adopting new technology normally have a higher level of education. That is clear evidence of the significant role of education level on OB acceptance, which also needs further investigation.

This research will accordingly expand the role of the demographic variables: gender, age and education level as exploratory variables. As the main aim of this research is to explore and investigate the most important factors affecting user acceptance of technology in the

context of online banking in Saudi Arabia, the next section discusses the cultural context to link it with OB acceptance.

2.11 Cultural context

Culture has been defined by Hofstede as a collective programming of the human mind that distinguishes a particular group of people from others. Consequently, culture is a potential determinant shaping user values and behaviour (Hofstede, 2010). Culture is the total way of life of a group people who have communal goals, attitudes, practices and values; they include common customs, art, literature, religion and philosophy. It also implies the same patterns of learning and shared behaviour (Kripanont, 2006). Culture is not just a set of core values that shape individuals' and public behaviours as a whole; rather culture strongly influences individuals' decision-making processes, which ultimately impact on users' behaviour of particular systems and technology (Srite & Karahanna, 2006). Understanding cultural contexts and their impacts on user behaviour can therefore explain how and why users accept or reject a technology in a specific cultural context. The investigation of users' acceptance behaviour has the potential to unearth insights into users (Kripanont, 2006). In order to gain in-depth insights on what hinders acceptance, a focus on culture is indispensable. The next section further discusses the most important cultural dimensions and frameworks that have been used widely in the literature, in order for the researcher to determine the most important factors that affect customers' acceptance of OB.

2.12 Cultural dimensions

Investigating users' acceptance of technology is a real challenge for marketers, as it involves multi-disciplinary issues, including social, cultural, psychological and technological dimensions (Chaffey & Smith, 2013). Further, as this type of study focuses on multi-cultural and non-western contexts, the nature of complexity and difficulty must be increased. Consequently, until now, the relationship between culture and usage of IT has remained under-explored in the field of Information Systems (IS) and business studies (Hwang & Lee, 2012; Kaba & Osei-Bryson, 2013).

According to Pookulangara and Koesler (2011), culture is a very wide and unsolicited concept, which leads to numerous different definitions in the social sciences and related studies. Lonner & Adamopoulos (1997) argue that there are inconsistencies when using culture as a default moderator and variable in any research, so the application of culture in secondary status in theoretical variables often fails to furnish in-depth and detailed explanations. Some significant frameworks and models have studied culture and the usage of IT, but they have focused on universal dimensions or sets of values (Lonner & Adamopoulos, 1997).

The existing literature and studies in cross-culture have benefited from several models and theories investigating the role of culture. Kluckhohn and Strodtbeck (1961), Hall (1977), Schwartz (2006), Hampden-Turner and Trompenaars (1998), Hofstede (2001), Hofstede *et al.* (2010), and House and Javidan (2004) are the most referenced studies in cultural issues. The current research provides an overview of two cross-cultural frameworks (Hofstede, 2001; Hofstede *et al.*, 2010 and Schwartz, 2006) that have increased the researcher's

awareness of cultural differences. These works are widely applied to investigate users' behaviours and intentions about technology acceptance.

2.12.1 Hofstede's cultural dimensions

With a view to tracing users' behaviour and intentions relating to accepting and rejecting any particular systems or technology, Hofstede's cultural dimensions is a powerful framework that investigates various aspects of cultural influences on particular systems or technology (Kripanont, 2006, Al-Qeisi, 2009). This framework measures work-related values, attitudes and norms that are subject to differences in culture. Hofstede carefully assessed the differences in the psychological characteristics for people in 40 IBM sites around the world, mainly asking those people about their preferences and attitudes. From his research findings, Hofstede argues that underlying cultural dimensions play a pivotal role in determining people's attitudes and preferences (Hofstede *et al.*, 2010).

According to the work of Hofstede with IBM, the values that distinguished country cultures from each other can be classified into four groups: Power Distance Index (PDI); Masculinity versus Femininity (MAS); Uncertainty Avoidance Index (UAI) and Individualism versus Collectivism (IDV). The fifth dimension, Long-Term Orientation (LTO), was added in 1991 (Hofstede *et al.*, 2010). In their new addition 2010, Hofstede *et al.* (2010) added two dimensions: Pragmatic versus Normative (PRA) and Indulgence versus Restraint (IND). However PRA is similar to LTO but it did not replace it yet. Table 2.2 shows Hofstede's cultural dimensions.

Table 2-2 Hofstede's National Cultural Dimensions

HOFSTEDE'S NATIONAL CULTURE DIMENSIONS	
Power Distance Index (PDI)	"The degree to which the less powerful members of a society accept and expect that power is distributed unequally"
Masculinity versus Femininity (MAS)	"A preference in society for achievement, heroism, assertiveness and material rewards for success"
Uncertainty Avoidance Index (UAI)	"The degree to which the members of a society feel uncomfortable with uncertainty and ambiguity"
Individualism versus Collectivism (IDV)	"A preference for a loosely-knit or tightly-knit social framework in which individuals are expected to take care of only themselves and their immediate families"
Long-Term Orientation (LTO)	"Describes how people in the past, as well as today, relate to the fact that so much that happens around us cannot be explained"
Indulgence versus Restraint (IND)	"To what extent a society allows relatively free gratification of basic and natural human drives related to enjoying life and having fun"

Several studies (Struab, Keil & Brenner 1997; Im, Hong & Kang, 2011; Hwang & Lee, 2012; Lee, Trimi & Kim, 2013) successfully applied Hofstede's 'cultural dimensions framework and confirmed that cultural differences have a potential impact on the adoption and use of IT–based innovations. The findings of these studies confirm that technology adoption models and theories can be less strong predictors of technology usage, without tracing variation in cultural contexts. A culture scoring high on uncertainty index and low uncertainty avoidance depends on cultural traits (Hong & Kang, 2011). On the other hand,

with any culture scoring low in computerised method of communication and "power distance", it means that it does not favour technology-mediated communication. Users' individualism in acceptance of technology is similar to the power-distance index (Lee *et al.*, 2013). It has been found that any culture with a score high on masculinity would favour less technology-mediated communications, and cultures with a low score on masculinity tend to accept technology more readily (Im *et al.*, 2011).

Marketing and Information Systems (IS) studies have applied Hofstede's cultural dimensions, but their contribution to building theory, theorising and generalising practices are until now questionable (Leidner & Kayworth, 2006; Heinonen, 2007; Boone, 2013, Akhlaq & Ahmed, 2013). A significant number of research results have confirmed that Hofstede's framework focused more on the managerial part of Information systems, such as planning and staffing. Hofstede's cultural dimensions framework has notably been used in IS research that mainly concentrates on a small number of countries, and is especially rare in other countries outside the US. Some authors have criticised Hofstede's framework, as it was conducted only within a particular organizational context, among IBM, employees (Boone, 2013). Consequently, its sample had a homogenous and limited corporate culture leading to confounded differences (Schwartz, 2006). According to Kirkman, Lowe & Gibson (2006), Hofstede's framework shrinks culture to an overly simplistic four (now six) dimensions, which have failed to capture the flexibility and heterogeneity of culture. McSweeney (2002) criticised Hofstede's framework, because it is a detailed dissection and challenging to project for the entire national culture.

Leidner & Kayworth's (2006) findings approved the idea that Hofstede's dimensions and Information systems research are closely interrelated. Yoon (2009) adopted Hofstede's dimensions to explain how customers' acceptance of e-commerce depended on the effect of culture, especially PU, PEOU, PT, and BI. It was found that, in strong Uncertainty Avoidance (UA) cultures, individuals are threatened by unclear, unknown or uncertain situations. According to Sun and Zhang (2006), Srite and Karahanna (2006) and Yoon (2009), individuals in strong UA cultures are less likely to look at new methods of IT as useful tools, and they prefer to use existing, old methods, or a medium of higher information richness under the same situation. In addition, individuals who have high UA are more likely to be influenced by social opinions, to reduce uncertainty and to start performing an action (Sun & Zhang, 2006; Srite & Karahanna, 2006; Pookulangara & Koesler, 2011; Hwang & Lee, 2012). As will be illustrated in Chapter four, Hofstede's cultural dimensions are distinguished, and a choice among them is offered as being the most appropriate dimension to help answer the research question. The next sub-section discusses another cultural theory.

2.12.2 Schwartz's Cultural Values Orientations

According to Schwartz (2006), the cultural values orientation theory was developed from a large scale literature survey by Schwartz in 1994, 1999 and 2004. A total of seven cultural dimensions were developed to construct a cultural values orientation theory, namely: harmony, embededness, hierarchy, mastery, affective autonomy, intellectual autonomy and egalitarianism. Schwartz conducted large-scale surveys, after which seven dimensions were constructed, and a theoretical framework called 'cultural value orientations' was developed. The surveys investigated individuals' value preferences in different countries, to assess the significance rate of fifty-six kinds of values, serving as guiding principles in

individuals' lives. According to Schwartz, there is common content in individuals' values and principles. Ten different individual kinds of values were generated from Schwartz's value theory, classified into two dimensions: self-enhancement versus self-transcendence and openness to change versus conservation.

According to Schwartz (2006), in its basic levels, the theory looks at the values as a cause of several related motivations which in turn build a circular structure. Thus Schwartz's theory of cultural value orientations and Hofstede's cultural dimensions framework are interrelated. Schwartz's framework of cultural value orientation integrates structural, dynamic and content-based elements. Schwartz's framework outlines structural relationships between several types building on potentials of compatibility or conflict without defining detailed content of value types (Lonner & Adamopoulos, 1997).

Schwartz summarises the seven values discussed above into the following dimensions: Harmony versus Mastery; Autonomy versus Embededness; and Hierarchy versus Egalitarianism (Schwartz, 2006). These seven cultural value orientations are validated through the survey results gathered from 70 cultural groups and 67 nations. Through comparing 67 national groups, Schwartz assessed the seven cultural values' scores (Schwartz, 2006). His assessments show that 75 % of the nations in the world can be included in one of the seven dimensions illustrated in Figure 2.14.

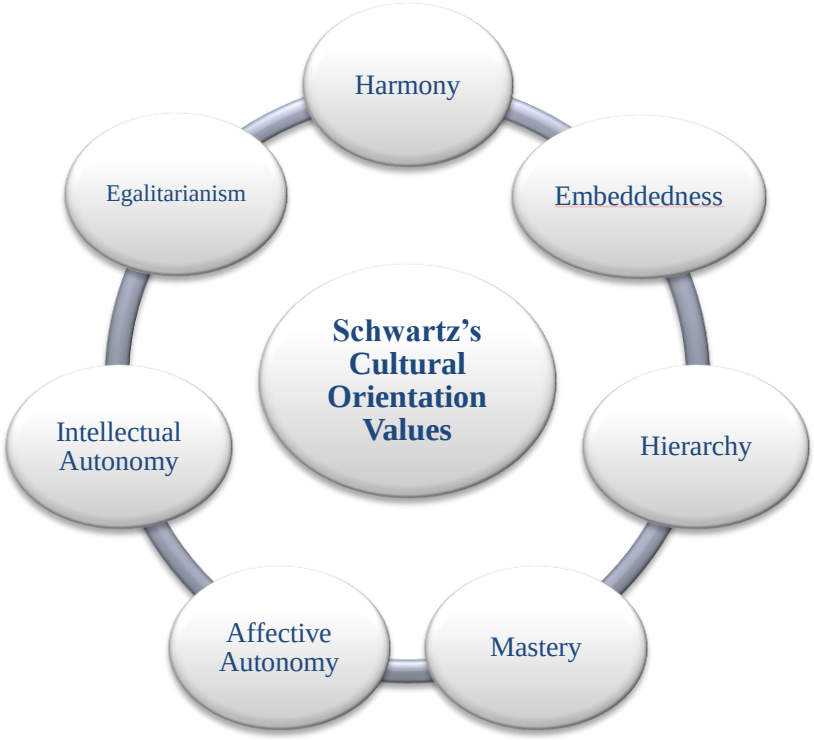


Figure 2.13 Schwartz's value types

According to Halverson and Tirmizi (2008), the noteworthy strong point in Schwartz's framework is that it is driven by theory and supported by a wide range of literature, including the empirical, religious and philosophical studies from several nations and cultures. However, Ng, Lee and Soutar (2007) argue that Schwartz's framework was not derived empirically, while Hofstede's framework was. According to Smith, Peterson and Schwartz (2002), most of Schwartz's framework is similar to Hofstede's. According to Malik and Zhao (2013) by comparing the several cultural frameworks, Hofstede's dimensional approach can be seen as the most influential. That gives an indication of the suitability of using Hofstede's framework in this research, for further investigation of customers' behaviour with regard to technology.

It can be concluded that the literature and cross-cultural studies present different dimensional models and theories, such as Kluckhohn and Strodtbeck (1961); Hall (1977); Schwartz (1994, 1999, 2004); Hampden-Turner and Trompenaars (1998); Hofstede (2001); Hofstede *et al.* (2010); House and Javidan (2004). This research presents two examples of cross-cultural frameworks to understand the differences between them. The work developed by Hofstede (2001), Hofstede *et al.* (2010) and Schwartz (1994, 1999, 2004) are widely applied to investigate users' behaviours and intentions on technology acceptance. The next section presents further studies conducted to distinguish between cultures and their acceptance of technology.

2.13 Technology adoption studies in different cultural contexts

Srite and Karahanna (2006) argue that, although users' technology acceptance is investigated by a significant number of studies, the majority of these studies have been conducted in western countries. In the early stage of technology acceptance research, the pioneers in studying technology acceptance outside the western countries were few (Gefen & Straub, 1997; Straub, Keil & Brenner, 1997; Rose & Straub, 1998; Hu, Chau, Sheng & Tam, 1999; Veiga, Floyd & Dechant, 2001; Chau, Cole, Massey, Montoya-Weiss & O'Keefe, 2002; Al-Gahtani, Hubona & Wang, 2007). It can be seen from the findings of these studies that they differ from the findings in western countries, such as the forerunner study by Straub *et al.* (1997), which investigated users' acceptance of technology in three countries: the USA, Switzerland and Japan. This study investigates email usage and adoption in these three different cultures. The findings of the investigation reveal that cultural contexts in these three countries significantly impact the usage of email. Furthermore, the findings show that the TAM model is applicable to both the U.S. and

Switzerland, but not Japan. Consequently, TAM cannot explain corresponding users' behaviour across cultures (Straub *et al.*, 1997).

Subsequently, it is important to investigate the acceptance of technology across different cultures, in order to analyse how existing models, theories and studies of technology acceptance vary across different countries and cultures around the world (Srite & Karahanna, 2006). According to Kaba and Osei-Bryson (2013), since culture potentially moderates the relationship between determinants of people's actions and behavioural intention, it requires a greater number of studies across different cultures to strengthen the validity of the technology acceptance models. For example, knowledge derived from the findings from studies in technology acceptance in North America must be carefully applied to other cultural contexts as well as beyond North American Countries, particularly to non-Western countries.

It has been established that understanding people's acceptance of a technology in different cultural contexts shows that culture has a big impact on accepting and adopting any technology (Srite & Karahanna, 2006; Pookulangara & Koesler, 2011; Hwang & Lee, 2012; Kaba & Osei-Bryson, 2013). Accordingly, understanding cultural contexts and their impacts on user behaviour can explain how and why users accept or reject a technology in a specific cultural context. Investigation of users' acceptance behaviour has the potential to unearth insights into users. Therefore, in order to gain in-depth insights into what hinders acceptance, a focus on culture is necessary.

According to Smith *et al.* (2002), cultural orientations across nations, groups and organisations are recognised as an important issue because it is a key to understanding

cultural differences. Thus, research in this stream of cultural orientations has concentrated mainly on contrasts between cultures using various dimensions. In the same way, Magnusson, Wilson, Zdravkovic and Westjohn (2008) argue that, although there are numerous frameworks to investigate cultural differences, there is still the lack of a comprehensive framework that is theoretically and methodologically unquestionable. Therefore, they (Magnusson *et al.*, 2008) investigated other cultural distance variables dependent on cultural-value frameworks, integrating the frameworks of Schwartz, Trompenaars and Hofstede, with a view to investigating cultural dimensions against recent and traditional frameworks, and with a view to attaining in-depth and detailed findings. Their study results reveal that Hofstede's cultural distance construct can compare different cultures better than other frameworks.

Furthermore, Hofstede's dimensions and Schwartz's values were used by Ng *et al.* (2007) to measure 23 countries' distance scores and to assess the harmony between the two cultural frameworks. Moreover, their relations with the figures of international trade explain how a framework can predict amounts of trade among several nations. The findings indicate that Hofstede's dimensions and Schwartz's values are not harmonious in the context of trade. In addition, the findings show that Schwartz's values can predict trade amount between nations better than Hofstede's dimensions.

Yoon (2009) adopted Hofstede's dimensions to explain how customers' acceptance of e-commerce depends on the effect of culture, especially on PU, PEOU, PT and BI. It has been found that, in strong UA cultures, individuals feel threatened by unclear, unknown or uncertain situations. Recently, Hwang and Lee (2012) argue that both the cultural psychology and the IS existing literature recommend the possible advantage of using a

measurement of culture at individual level, such as uncertainty avoidance. They investigated the moderating role of UA on social influence and trust with purchase intention on a developed model, and they found that UA moderates the relationships between social influence and trust with purchase intention.

Some studies investigate OB adoption in various cultural contexts (Gerrard & Cunningham, 2003; Chan & Lu, 2004; Laukkanen, Sinkkonen & Laukkanen, 2008; Akhlaq & Ahmed, 2013; Al-Jabri & Sohail, 2012). In the Singaporean OB context, Gerrard and Cunningham (2003) designed a conceptual model that included eight constructs that impact on customers' adoption of OB. They introduced two constructs to the literature for the first time: accessibility and confidentiality. The findings reveal that the more OB services become convenient, less complex and more compatible, the more customers become willing to adopt it. This study found no difference between non-adopters and adopters regarding their perceptions about economic benefits; social desirability; accessibility and confidentiality. Gerrard and Cunningham (2003) attempted in their study to better understand why customers accepted or rejected OB services to help banks improve their services.

Chan and Lu (2004) extended and developed TAM2 and social cognitive theory to develop a new conceptual model with eight constructs, to explain customers' acceptance of OB in the context of Hong Kong Banking. They employed SEM to analyse the data collected from 499 university students. The findings reveal that computer self-efficacy and subjective norms impact customers' intention to adopt OB indirectly. Furthermore, they found PU had no significant impact on customers' intentions, while PEOU significantly impacted customers' intentions to adopt OB indirectly through PEOU.

In the context of Finland, Laukkanen *et al.* (2008) investigated OB resistance by dividing non-adopters into three groups based on their intentions to use OB (postponers, opponents and rejectors), to discover how these groups' resistance differed. They collected data from non-adopters of OB through a postal survey in Finland. They used the earlier literature on OB and consumer resistance theory to develop their research measurements. They found that the three groups are much different, as postponers showed lower resistance than the others, while rejectors showed more resistance than opponents. The research raised the importance of psychological barriers, which are more important than any construct in the model (PEOU, PU), which supports the aim of this research, which is to investigate the role of culture on customers' perceptions.

Akhlaq and Ahmed (2013) investigated several types of motivation that motivate people to trust and use OB in a low income country. They integrated motivation theory and TAM to improve the level of trust in individuals to adopt OB. Akhlaq and Ahmed (2013) studied the extrinsic and intrinsic motivations that may enhance people's trust in adopting OB. Using SEM on a sample of 109 respondents, the proposed model showed that intrinsic motivation can only improve users' trust in OB adoption.

Al-Jabri and Sohail (2012) investigated the factors that may help bankers to design mobile services to be more adoptable by customers. Using Diffusion of Innovation as a baseline theory, they examined a number of factors affecting mobile banking adoption, by collecting data from 330 mobile banking users in Saudi Arabia. They found that observability compatibility and relative advantage have a significant impact while complexity and trialability have no significant impact on mobile banking acceptance. Al-

Jabri and Sohail (2012) suggest further studies to investigate the impact of social factors on adoption.

Ariff *et al.* (2012) aimed their study at potential young users in Malaysia, as they significantly impact the continuous usage of OB. They examined the impact of adding Perceived Credibility and Computer Self-efficacy to the conceptual model as an extension to TAM. 222 undergraduates marketing students in a Malaysian state university took part. The findings indicated that computer self-efficacy, PU, PEOU and Perceived Credibility significantly determined user acceptance of OB. The findings confirmed that privacy and PC security needed to be carefully considered in order to attract potential customers to OB. Furthermore, computer self-efficacy was found to have a significant indirect impact on BI through PU, PE and PC.

In Pakistan, Butt and Aftab (2013) examined the impact of religious attitudes towards *Halal* banking on perceived e-service quality and e-satisfaction with Islamic OB. 350 survey questionnaires were distributed to six Islamic bank customers in Pakistan and 292 returned surveys were used and analysed using SEM. The authors found that there is a positive impact of attitude towards *Halal* banking on perceived e-service quality and overall e-satisfaction with Islamic OB. Furthermore, perceived e-service quality increased users' e-satisfaction, which, in turn, increased their e-loyalty to the bank. Butt and Aftab (2013) found that e-trust mediates the relationship between e-loyalty and e-satisfaction. It is clear from this study how specific cultural and religious attitudes can impact customers' perceptions regarding their bank and their satisfaction with and loyalty to it.

This research benefited from the previous work by increasing awareness of cultural differences and understanding that culture is not just a set of core values that shape

individuals' and public behaviours as a whole; rather culture strongly influences individuals' decision-making processes, which ultimately impact on users' behaviour of particular systems and technology. Therefore, this research try to understand the Saudi cultural context and its impact on technology users' behaviour. It was clear from the above discussion that any culture having low scores on power distance and computerised means of communication, it means that it does not favour technology-mediated communication. Users' individualism in acceptance of technology is similar to the power-distance index. In addition, any culture with a score high on masculinity would favour less technology-mediated communications, and cultures with a low score on masculinity tend to accept technology more readily. It has been established that Hofstede's dimensions was applied and accepted widely in research and it will be used in this research.

After appraisal of these cross-cultural studies, it is important to re-introduce the claim of Han (2003) and Kripanont (2006) who raise the essential issue that it is difficult to generalise from the findings across different research settings. Han (2003) argues that cross-cultural studies do not provide generalised findings. Therefore, this study will focus on Saudi culture, to generate more validated findings, as it is justified several times in this research and it will use Uncertainty Avoidance dimension only as explained in section 4.9.

The target of this research is to explore and investigate the most important factors affecting user adoption of technology in the context of online banking in Saudi Arabia. The next section provides the background to Saudi Arabia and its financial system. Then, several studies will be presented that discuss OB acceptance in Saudi Arabia, and this concludes the chapter.

2.14 Background to Saudi Arabia

Saudi Arabia differs from western countries in several ways, namely its culture, its economy, its development and religion (Niblock, 2013). It is therefore important to understand the context of Saudi Arabia, since every country is surrounded by particular contexts and circumstances that potentially influence everyday activities, the way of life and business.

The following sections provide a short introduction to Saudi Arabia and give an overview of its financial system, particularly the Saudi Arabian Monetary Agency (SAMA), and the banks working within the country. A brief description is provided of the Internet in Saudi Arabia, including the organisations that are responsible for managing Internet connectivity in the Kingdom of Saudi Arabia (KSA).

Figure 2.14 Background to Saudi Arabia

2.14.1 History of Saudi Arabia:

The Kingdom of Saudi Arabia is an Asian country located in the heart of the Middle East, covering about 2,149,690 sq. km. It is about nine times larger than the UK. It has many resources, with different aspects: the Holy Land is a pilgrimage destination for Muslim people, it enjoys oil wealth, and is a land of opportunities for expatriates from Asia, Europe and the United States (Ministry of Foreign Affairs, 2013).

KSA was established as a modern state by King Abdul-Aziz in 1932, and it was transformed into a modern industrial country after the discovery of oil, which it exports. Its sector of oil is the main contributor, about 35 percent of the total for the whole country. Thus it is an oil-controlled economy (Niblock, 2013). KSA holds more than 20% of the world's oil reserves, besides being a large producer of natural gas; thus it is a flourishing economy (Ministry of Foreign Affairs, 2013). The government has launched several modernization and reform programs throughout its business- and investment-related infrastructure development.

In July 2013, the population of Saudi Arabia was 26,939,583, which included a significant number of foreign nationals, about 5,576,076 (Central Intelligence Agency [CIA], 2013). The male to female ratio is 50.1% and 49.9%. About 27.1% of the total population is foreign nationals, out of which, about 69.5% are males (Ministry of Foreign Affairs, 2013). The population growth rate in the country is about 3.24%, which is above the average growth rate in Arab countries and in the world (about 2.37% and 1.19%,

respectively) (Ministry of Foreign Affairs, 2013; CIA, 2013). The next subsection describes the Saudi financial system, for better understanding of OB in Saudi Arabia.

2.14.2 The Saudi Arabian financial system

The financial system in Saudi Arabia comprises different types of organizations, such as the Saudi Arabian Monetary Agency (SAMA), 23 commercial banks (13 Saudi, 5 GCC, 5 multinational banks), a stock market besides significant numbers of credit organizations (SAMA, 2014a).

2.14.2.1 The Saudi Arabian Monetary Agency (SAMA)

The Saudi Arabian Monetary Agency (SAMA) is responsible for the management and control of its financial system and institutions. It acts as the country's central bank (Assaf, Barros & Matousek, 2011). There having been no official monetary system before SAMA was established in 1952, it also works as an advisory institution to the Saudi government, for the monitoring of commercial banks and the control of financial markets (Almogbil, 2005; SAMA, 2014a). It has also introduced new, advanced, money transfer systems with new payment systems such as "SPAN", "Saria" and "Sadad", which facilitate electronic payment of bills and money transfers (SAMA, 2014d). Commercial banks in KSA can be classified into Saudi Banks and international banks

2.14.2.2 Saudi Banks

In Saudi Arabia, there are a total of thirteen Saudi commercial banks, seven of which are totally Saudi owned, while the remainder are joint ventures with foreign commercial banks

and institutions. The financial sector in the KSA is the largest of the GCC countries, and it is one of the most profitable national sectors, with total assets of 2013 US$ 6.68 billion (SAMA, 2014b). Most Saudi commercial banks provide services through online banking, including web and mobile applications, for example, personal loans; current account management; brokerage services; issue of credit cards; mutual funds and many other services. However, they have recently been facing several challenges in managing online banking services. Firstly, online banking services have become popular with young people, who have become early adopters of online services. Since every commercial bank has recently begun online services, it has emerged as a competitive challenge too (Assaf *et al.*, 2011). A list of Saudi commercial banks is presented in the appendices.

2.14.2.3 Licensed foreign banks

Notably, the Saudi financial sector operated in a closed system, and, because of that, until 1975, SAMA did not allow non-Saudi banks to operate in the market (SAMA, 2014c). However, recently, SAMA first allowed banks from GCC countries to operate in the Saudi financial market, and, shortly after, several foreign banks were allowed to enter the financial system, as a step towards financial integration (SAMA, 2014e). Until recently, SAMA licensed a total of ten international banks to operate within the Saudi financial system, of which five were from Gulf countries (GCC Banks), the remaining five being from countries outside the GCC. Five of these banks have started in full, while the others were partly licensed (SAMA, 2014c). A list of foreign banks is presented in the appendices.

The last two sub-sections describe the situation in Saudi Arabia regarding its history and financial system. To arrive at a full understanding of OB acceptance in Saudi Arabia, the history of the Internet in Saudi Arabia needs to be discussed.

2.14.3 The Internet in Saudi Arabia

The development of an Internet infrastructure in Saudi Arabia has also been very recent. Internet users numbered only 200,000 in the year 2000. Within fourteen years, Internet users have increased 65-fold, and there are now 13 million users. Thus, Internet markets in the KSA can be seen as one of the fastest developing (Internet World Stats, 2014). In KSA, the infrastructure of Internet has had to develop to match the big demand in usage (Assaf *et al.*, 2011). Commercial banks have harnessed the advantage of the wide range of Internet users and the Internet infrastructure to promote online banking services. However, Internet users and the Internet infrastructure have increased competition between the banks.

When the Saudi stock market boomed in 2003, the commercial banks started to view Internet banking as a strategic advantage, to satisfy customers involved in the stock market. Despite the remarkable changes in technology, the infrastructure, the economy and culture, Saudi users still struggle with e-commerce. For example the majority of Saudis are resistant to credit card usage for online purchases (Al-Ghamdi, Drew & Alshehri, 2011; Al-Jabri & Sohail, 2012).

Internet Developers and Providers

The responsibility for improving and controlling Internet services in Saudi Arabia has been accorded to several authorities. The Ministry of Information and Communication Technology, The King Abdul Aziz City for Science & Technology (KACST), The Internet Services Unit (ISU) and the Communications and Information Technology Commission (CITC), in cooperation together, have the authority to control and improve Internet services in KSA (Internet Services Unit, 2013). These authorities, with significant support from the Saudi government, have set up mechanisms to filter and aggressively monitor the Internet content, using firewalls to stop Internet users from downloading or seeing pornography or offensive Internet content (Internet Services Unit, 2013). The main Internet providers in Saudi Arabia are the Saudi Telecommunication Company (STC), "Mobily" and "Zain KSA", as well as a number of Internet Service Providers (ISPs) from the private sector.

In 2007, the Saudi CITC carried out a wide-ranging study of various aspects of Internet usage in the KSA, one of which is e-commerce awareness and activity (Communications and Information Technology Commission (CITC), 2007). This study shows that around nine per cent of Saudi commercial firms were involved in e-commerce and around forty per cent of private organisations had their own websites. Regarding customers, the report shows that around forty per cent of customers were aware of e-commerce. However, six per cent only had bought or sold online products, such as hotel bookings and airline tickets (CITC, 2007). In 2010, the CITC Report restated that e-commerce is still in its early stages in the KSA, as the majority of Saudi retail chains are yet to establish online stores, and only eight per cent of them started online trade (CITC, 2010). It can be said that online service adoption is in the early stages for both organisations and customers, and requires more efforts to enhance online service adoption and acceptance.

In KSA, the STC, Mobily and Zain companies are the main Internet service providers and the main operators for mobile communications. They provide convenient Internet services to customers through landlines and mobiles. Furthermore, and according to Google's Our Mobile Planet report (2013), Saudi Arabia is one of the leading countries in smartphone adoption (the second in the world rankings). From Google's report, three out of every four Saudi mobile phone users have a smartphone. Moreover, the report showed a significant increase (21 percent) in the adoption of smartphones in 2012 and 2013. This information gives the researcher a chance to reach the targeted population easily through their smartphones. The next section outlines the existing studies on OB acceptance in Saudi Arabia.

2.14.4 The culture of Saudi Arabia:

Saudi social and cultural characteristics differ from those in western countries such as the UK. The KSA is a conservative country where Islamic teachings and Arabian traditional cultural values are to the fore (Elamin, 2012). In the GCC country range of cultural characteristics, KSA culture is classified as distinctly tribal and conservative, with its adherence to Islamic values (Baker, Al-Gahtani & Hubona, 2007). It has been said that for better understanding of a particular culture, a comparison with other cultures is needed. Furthermore, a comparison across several cultures should follow agreed standards to validate the findings (Leidner & Kayworth, 2006). Hofstede's cultural dimensions (discussed earlier) are recognised as a most influential tool when comparing different nations and cultures (Pavlou and Chai 2002; Leidner & Kayworth, 2006; Elamin, 2012). It

is therefore compared with the UK culture, using Hofstede's dimensions, for a more complete understanding of its culture.

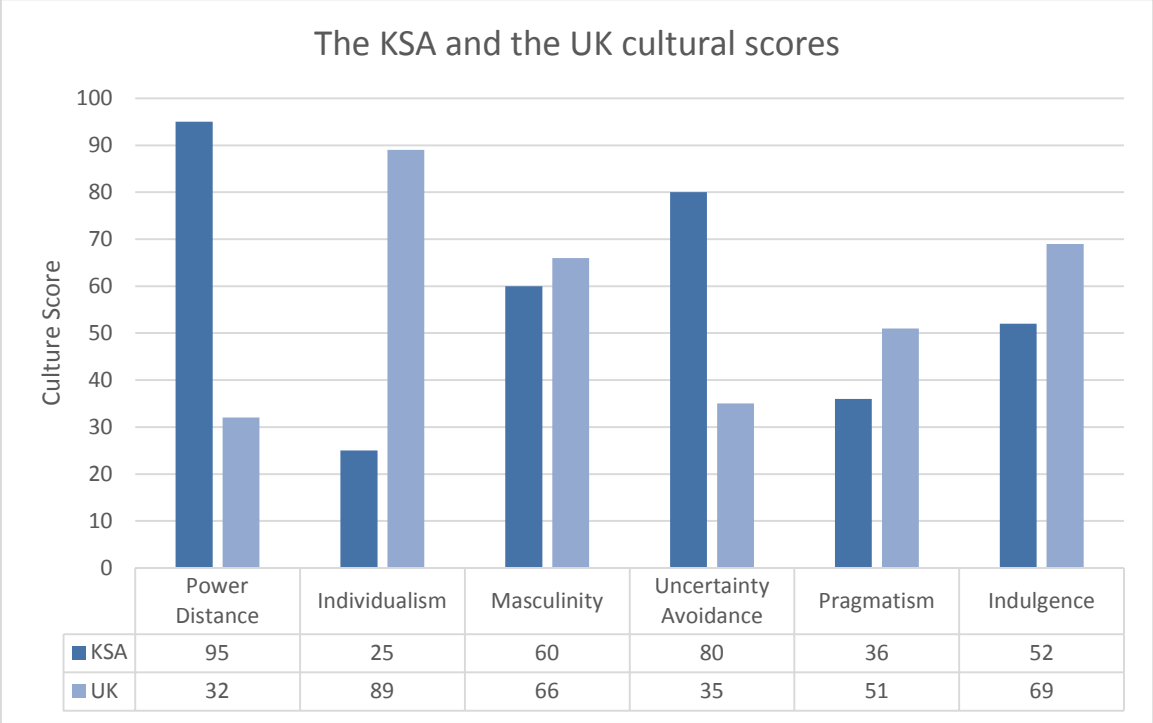


Figure 2.15 A comparison between the KSA and the UK culture score.

By comparing Saudi culture with another culture (the UK), a clearer and deeper image emerges, regarding the uniqueness of its culture. From Figure 2.16 above, it can be seen that the Saudi power distance score is higher than that of the UK (Hofstede *et al.*, 2010). Power distance shows how one expects and accepts power differences between people. A high score shows that people accept a hierarchical order, and reveals deep-rooted inequalities; centralization is popular, and dependents easily follow orders (Baker *et al.*, 2007).

The score for individualism shows that the Saudi score is much lower than the UK's (Hofstede *et al.,* 2010). Individualism can tell how individuals merge into groups and shows whether individuals define their self-image as "I" or "We". A Saudi score of 25 shows a collectivistic society, which reflects high loyalty and close long-term commitment to the group.

In a collectivistic society such as in Saudi Arabia, everyone takes responsibility for the other members of the group (Elamin, 2012). The masculinity score shows no big difference between the UK and the KSA (Hofstede *et al.*, 2010). It refers to the extent to which traditional gender roles are differentiated. From the score, Saudi Arabia can be classified as a masculine society where people "live in order to work". Managers are expected to be confident; the importance is on competition, equity and performance.

The uncertainty avoidance score shows how subjects in Saudi culture are classified as uncertainty avoiders (Hofstede *et al.*, 2010). Uncertainty avoidance shows how a people or individuals feel threatened by ambiguities and uncertainties. Regarding the pragmatism score (called Long-Term Orientation), the KSA is scored lower than the UK. Pragmatism shows that Saudi people have a strong concern with establishing the absolute truth, exhibit respect for traditions, do not tend to save for the future so much, and focus on achieving results more quickly. Finally, indulgence measures how people try to control their desires and impulses, based on the way they were raised. The KSA score (52) shows that Saudi culture is middle-ranked, neither indulgent culture (with strong control) nor restrained (free control) (Hofstede *et al.*, 2010).

2.15 Online banking adoption in the Saudi context

Insufficient efforts have been made in this area to investigate banking technology acceptance in Saudi Arabia, as only a few studies have broached it (studies by Al-Ashban & Burney, 2001; Al-Somali *et al.*, 2009; Almogbil, 2005; Sohail & Shaikh, 2008; Alsajjan & Dennis, 2010). In one of the first attempts to explore banking technology acceptance in the KSA, Al-Ashban and Burney (2001) investigated Saudi tele-banking usage and adoption. They found that bank customers started to extend their usage of tele-banking and improve their experience with the system of banking technology. Furthermore, they found that the most important factors that encourage customers to adopt tele-banking is their level of income and level of education. Although Ashban and Burney (2001) can be seen as the first attempt in the field of Saudi banking acceptance, it concerns on the acceptance of tele-banking only which it does not help in online banking acceptance.

However, Almogbil's (2005) study can be seen as the first attempt to investigate online banking in Saudi Arabia. He examined the perceptions and demographics of online banking customers to discover what challenges they face to adopt OB. 473 Saudis were subjects in this research, which was conducted by questionnaire survey. The most important findings reveal the impact of professional background, level of education and technical competency on shaping the perception of OB users. However, the author found that a higher educational level increased concerns regarding OB security. It can be clear that Almpgbil's study does not provide an explanations about the factors that impact people acceptance and usage of OB. It can be seen as an exploratory study in the context of Saudi OB, which has not been investigated before. This current study will investigate

intensively the situation in the KSA to design a tailor made conceptual model explaining and expecting people action in the context of Saudi OB.

As Almogbil (2005) focused on OB adopters, Al-Somali *et al.* (2009) investigated online banking in Saudi Arabia by including adopters and non-adopters of OB, aiming to identify the factors that inspire bank customers to use online banking. They adopted TAM and several factors developed in the literature as control variables. After collecting data from 400 customers, they found that awareness of online banking and its benefits, computer self-efficacy, the quality of the Internet connection and social influence had a significant impact on PU and PEOU of OB adoption. In addition, resistance to change, trust and education level have a significant impact on customers' attitudes towards OB usage. Although pioneering studies in online banking in the KSA were made, the need for a carefully designed model to suit the context of KSA and its culture is important, to fill the gap in the existing literature, and to help direct the huge efforts that are made by banks, the government and other parties. Al-Somali's study was not designed to suite the context of Saudi OB specifically. Therefore current effort will investigate the Saudi OB to design a conceptual model explaining and expecting people action in the context of Saudi OB.

Lately, Sohail and Shaikh (2008) have measured the quality of OB services from a customer perspective. Although this work is not of specific interest to this research, it is based on the same methodological procedures. Based on the existing literature, 64 variables that influence online banking service quality in the customers' perception were listed. After that, a focus group interview (12 students) was conducted to find the most important variables that actually impact the customers' perceptions regarding the quality of online banking in Saudi Arabia. Following the results of both the literature and the focus

group, a questionnaire survey was conducted in KSA. From the study, "efficiency and security", "fulfilment" and "responsiveness" were the most important factors impacting users' evaluation of service quality. The study reported that the main problem for customers is navigation, as well as making a transaction of a specific nature or locating required information although OB offers an excellent opportunity to carry out online transactions or to find data and information, (Sohail & Shaikh, 2008). Although Sohail and Shaikh's study concentrate on the quality of OB services only, they followed a specific methodological procedure, as explained above, to measure and investigate Saudi OB context accurately. For more reliable and effective findings, the current research will follow the same methodological procedures, as explained in Chapters three, "the empirical study", in order to investigate intensively the situation in the KSA to design a tailor made conceptual model explaining and expecting people action in the context of Saudi OB.

One of the latest efforts is the work of Alsajjan and Dennis (2010), who introduced a revised model for technology acceptance to explain bank customers' behaviour in terms of adoption and acceptance of OB. They collected data from 618 university students in KSA and the UK to compare the results. They introduced a new construct called "attitudinal intentions". They found that PU and PT fully mediate the impact of SN and perceived manageability on attitudinal intentions. They suggested a possible impact of culture on technology acceptance. The main result of the study is in introducing the Internet Banking Acceptance Model (IBAM), which was capable of explaining over 80% of the attitudinal intentions.

Although Alsajjan & Dennis (2010) found a possible impact of culture on technology acceptance, their study did not measure the impact of culture directly, which made it

unable to link confidently between culture and technology acceptance. They recommended further work to examine the impact of culture, which may cover gaps in knowledge. Alsajjan and Dennis (2010) recommended further work to examine the impact of gender and other demographics on OB adoption behaviour, especially in the KSA, by using a larger sample, as this issue had not been investigated. As a result, the researcher is aware of the efforts that have been achieved in the context of online banking in the KSA, and has designed the research to continue the journey, by addressing and investigating gaps in knowledge, with an attempt to contribute academically and practically. This research will take into consideration the recommendations of Alsajjan and Dennis (2010).

The above discussion of the existing literature suggested various factors that determine and explain people's acceptance and usage of technology and OB specifically in the context of Saudi Arabia (Table 2.3). To achieve the research aims and objectives, these factors, and the factors from table 2.1, will be investigated further in the qualitative part of this study (see Chapter three), to arrive at the most important factors. Therefore, the outcomes of this chapter (literature review) will be used as input for the qualitative study. After that, the output from both reviewing the literature and the empirical study will be used as input for Chapter four (theoretical framework), to arrive at an appropriate conceptual model to answer the research questions and achieve the research goals.

Table 2-3 Factors Used Previously to Explain Saudi OB Acceptance

Age	Fulfilment	Resistance to Change
Attitudinal Intention	Gender	Responsiveness
Awareness of OB	Income	Security
Computer Self-efficacy	Perceived manageability	Technical competency

Education	Professional background	Trust
Efficiency	Quality of Internet connection	

2.16 Conclusion

The literature has indicated the need for a conceptual model concerning national cultural impact on user acceptance of technology, especially in developing countries, such as Saudi Arabia. Banks and related government authorities in Saudi Arabia have made great strides towards improving their e-services. However, these efforts have come with a lack of theoretical background. This research explores the main concerns, with the aim of providing a better understanding of people's acceptance and adoption of technology in the context of OB in Saudi Arabia. Several models and theories were discussed and compared, and other relevant research papers were reviewed.

The literature suggested various factors as determinants of people's adoption of technology in general, and OB specifically. It is not ideal for a simple conceptual model to include all these factors to be able to explain customers' behaviour. Therefore, to narrow these factors down, and to identify the factors that did not emerge in the literature, the present study employs a qualitative investigation (Tables 2.1 & 2.3). The findings from the literature review will be used in the empirical study the next chapter, in order to attain the salient factors affecting user acceptance of technology in the context of OB in Saudi Arabia. The next chapter discusses the empirical study.

Chapter Three the Empirical Study

(qualitative stage)

3.1 Introduction

It was clear from the literature that various factors are suggested as determinants of people's adoption of technology in general, and OB specifically. It is not ideal for a simple conceptual model to include all these factors to be able to explain customers' behaviour. Therefore, to narrow these factors down, and to identify the factors that did not emerge in the literature, the present study employs an empirical study as a qualitative investigation including two focus groups and eight interviews. The findings from the literature review and the empirical study will be used to shape the theoretical framework in order to develop a conceptual model to explain the salient factors affecting user acceptance of technology in the context of OB in Saudi Arabia. The empirical study will be discussed in this chapter.

3.2 The empirical study process

The outcome of chapter two was used as input to the qualitative study, in order to arrive at an appropriate conceptual model to explain the main factors affecting user acceptance of OB within the national cultural context of Saudi Arabia. The empirical (qualitative) study was a combination of two focus groups and eight interviews. Figure 3.1 illustrates the process of the research and the steps taken to arrive at this stage.

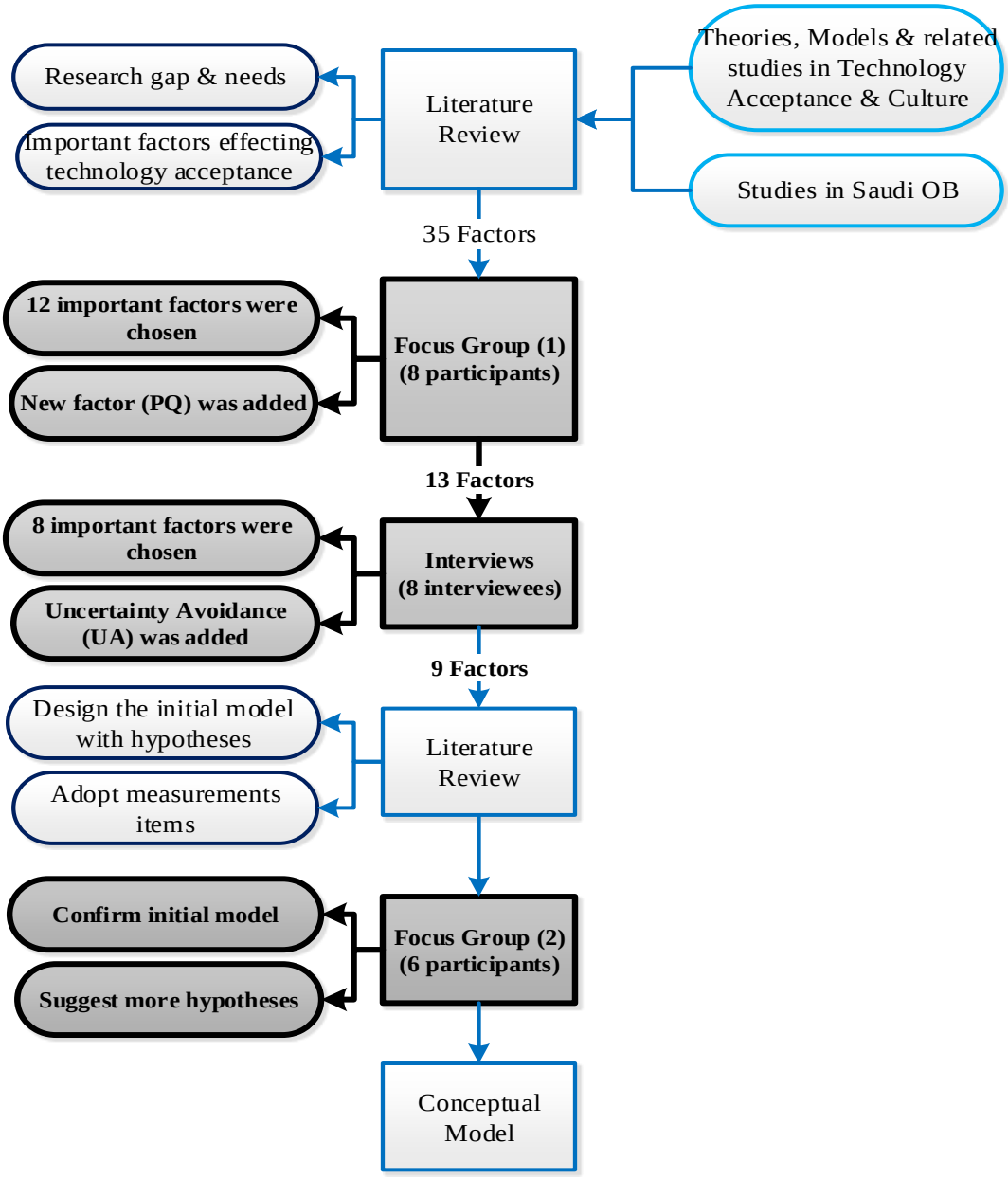


Figure 3.1 The process of empirical study

3.3 The First Focus Group

A focus group is a type of qualitative research methodology, in which the researcher (named the interviewer, leader or moderator) encourages participants to discuss a specific topic or issue (Collis & Hussey, 2009). In conducting focus group discussion, group members are encouraged to communicate with each other rather than the researcher asking

questions. The main function of the researcher in a focus group is to generate ideas, by making the group members exchange experiences or points of view (Bryman & Bell, 2011). Focus groups have been widely used in market research and academic work. Denzin and Lincoln (2012, p. 45) state that "*in the marketing context, focus groups are used to extract information from people on a given topic*". They argue that they are one of the best methods to improve researcher understanding of an investigated issue. According to Tashakkori and Teddlie (2010), in mixed methodology research, the focus group, as a qualitative method, is used to improve understanding of the research topic, draw a clear strategy for the following quantitative stage, and help design the questionnaires.

This research held two focus groups with postgraduate and undergraduate Saudi students, in order to improve understanding of OB acceptance in KSA, from the perception of representative customers, and to choose the most important factors influencing Saudis to adopt OB, as well as to investigate the relationships between those factors from the viewpoint of representative Saudi students. This method was based on the method followed by several authors who developed and extended technology models by conducting focus groups (Dahlberg, Mallat, & Öörni, 2003; Pikkarainen *et al.*, 2004; Hill *et al.*, 2005; Sohail & Shaikh, 2008).

The focus groups were conducted in order to understand more how Saudis identify the important factors that impact their decision to adopt OB. Consensus in sorting the identified factors as significant and the relationships between them was the main output of focus groups 1 and 2. According to Lazar, Feng and Hochheiser (2010), recording and analysing focus groups better validates the findings. Although there are several approaches

to analysing focus group discussion (e.g. content / thematic analysis of discussion / transcripts), Lazar *et al.* (2010) affirm that researchers need to choose a method to suit their way of thinking, to generate accurate findings and identify the important ideas raised. Therefore, this research followed a systematic way to identify the ideas that were raised by participants, which allowed him to identify the most important factors and relationships between them, according to the participants' decisions. This manner of recording and analysis has been followed by several researchers, such as Sohail and Shaikh (2008).

Deciding a suitable size for each focus group is an important issue for researchers. Some authors argue that a bigger group provides better results (Morgan 1997; Tashakkori & Teddlie, 2010), but Blackburn & Stokes (2000) find that it is difficult to control and manage a discussion in a group of eight and more. Bryman and Bell (2011) believe that a group of six to ten is perfect, reducing numbers as the research progresses. This research conducted two focus groups: 8 participants for the first group and 6 participants for the second group. The participants were given the opportunity to withdraw participation at any time. Furthermore, each participant in the focus group was given the opportunity to withdraw participation at any stage and the details of the researcher and his supervisor were provided in consent form, in order to allow respondents access to this option. Morgan's (1997) guidelines for focus group discussion were applied in these two focus groups, as the discussion was led by the researcher and two observers were present. For the convenience of the participating females, the focus groups were recorded using the researcher's and observers' notes (female participants preferred their voices not to be recorded). Insights from these two focus groups were used to improve the conceptual model and survey instrument design.

Table 3-1 Summary of focus groups 1 & 2.

<table>
<tr><td rowspan="5">Focus Group 1</td><td rowspan="3">8 participants (students)</td><td rowspan="2">4- Undergraduates</td><td>2 - Males</td></tr>
<tr><td>2 - Females</td></tr>
<tr><td rowspan="2">4- Postgraduates</td><td>3 - Males</td></tr>
<tr><td>1 - Female</td></tr>
<tr><td>Duration time</td><td colspan="2">2 hours and 30 minutes (including 20 minutes break)</td></tr>
<tr><td rowspan="2">Main findings</td><td colspan="2">12 factors were identified as important to determine OB acceptance.</td></tr>
<tr><td colspan="2">A new factor was suggested (Perceived Quantity).</td></tr>
<tr><td colspan="4">Findings of F.G 1 validated and improved in the interviews.</td></tr>
<tr><td colspan="4">From literature, F.G. 1 & interviews, initial model was built and assessed in F.G 2.</td></tr>
<tr><td rowspan="5">Focus Group 2</td><td rowspan="3">6 participants (students)</td><td colspan="2">2- Undergraduates (both males)</td></tr>
<tr><td rowspan="2">4- Postgraduates</td><td>2 - Males</td></tr>
<tr><td>2 - Female</td></tr>
<tr><td>Duration time</td><td colspan="2">2 hours (including 15 minutes break)</td></tr>
<tr><td rowspan="2">Main findings</td><td colspan="2">Confirm the initial model with its 8 proposed paths</td></tr>
<tr><td colspan="2">Suggest 9 new paths for the new constructs (PQ & UA).</td></tr>
</table>

Table 3.1 summarises the first focus group that was conducted after investigating the literature to decide what were the most important factors affecting OB acceptance. Eight postgraduate and undergraduate Saudi students were invited to form the first focus group, which lasted for 2 hours and a half, including a 20-minute break. The purpose of the discussion was explained clearly, with a brief introduction to the research questions and objectives, which helped the participants to get more involved in the discussion. 35 factors with definitions (Tables 2.1 & 2.3) were introduced. After presentation of each factor, the participants started discussion of its impact on their decision to adopt OB. Each student

had 35 cards with a factor name allocated to each. These were to be labelled as either significant or insignificant, after discussion of the constructs, and were placed in a box on the table.

After completion, the participants were asked to introduce any non-listed factors they believed influenced their decision. They mostly agreed on 13 factors that were found five times in the significance box, including a new factor "Number of OB users" (later called: Critical Mass / Perceived Quantity). The main finding from the first focus group was that the new factor described the impact of the number of OB users on the participants' decision to adopt OB. The participants explained the importance of other people's behaviour on their perception regarding that behaviour. The majority of participants (5 out of 8) confirmed that, regardless of any factor, they did not think about any new product or service in general, unless a good number of people start using or buying it. The factors suggested are listed in Table 3.2.

Table 3-2 Factors suggested from F.G 1

Suggested factors from focus group (1)
Behavioural Intention
Perceived Image
Number of people using OB
Perceived ease of use
Perceived Enjoyment
Perceived Usefulness
Personal Factors
Professional background
Quality of Internet connection

Resistance to Change
Security
Social Influence
Trust

The processes of focus group 1 are illustrated in the Figure 3.2, below:

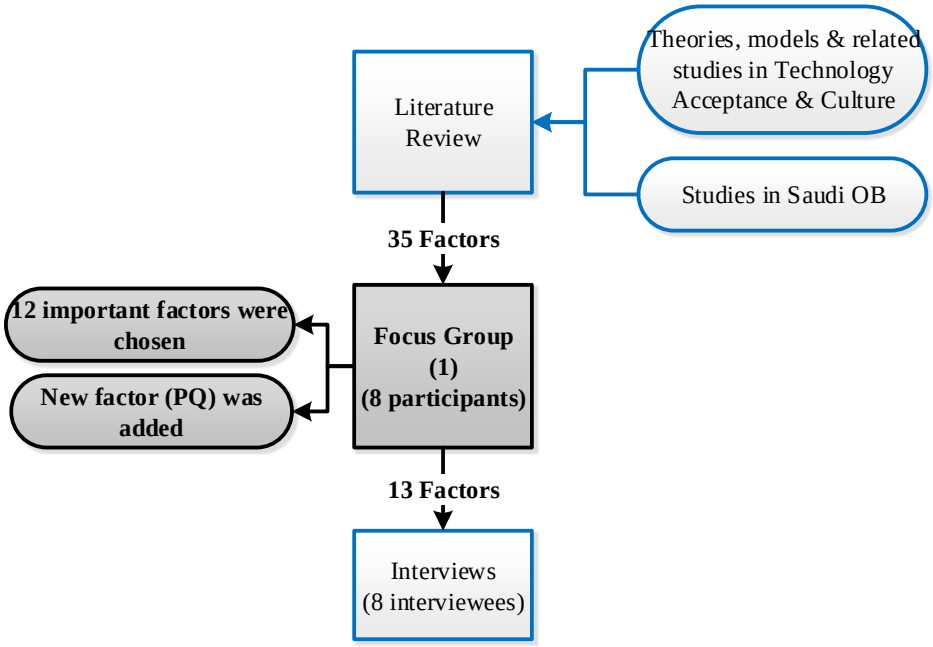


Figure 3.2 Processes of Focus Group (1)

3.4 Interviews

As the main aim of the empirical study is to explore the status of OB in Saudi Arabia, in-depth interviews were conducted to understand the role of national culture in OB acceptance. According to Denzin & Lincoln (2012), interviews can be regarded as a key data collection process in qualitative research. There are two sorts of interviews: the first is known as "*the survey research interview*", which is a commonly used type of process that is completed with fixed response topics borne in mind, and uses a methodical assessment

of results. This method also involves a loading process in correlation with statistical methods and quantitative sets. The other is called "*unstructured interview*" which, according to Ghauri and Grønhaug (2005), allows participants or interviewees to deliberate on answers, opinions and activities on a specific issue with an amount of freedom. This type of interview process involves the interviewer simply leading the questions and recording any responses given. The responses are then assessed at a later stage regarding the subject of particular "*how*" or "*why*" responses given by the interviewees. The sets of questions posed during the process, as well as the answers given, are unstructured in their nature, and encoded or fixed beforehand. This allows respondents to elaborate further without being pigeon-holed into giving a particular "yes" or "no" response (Bryman & Bell, 2011).

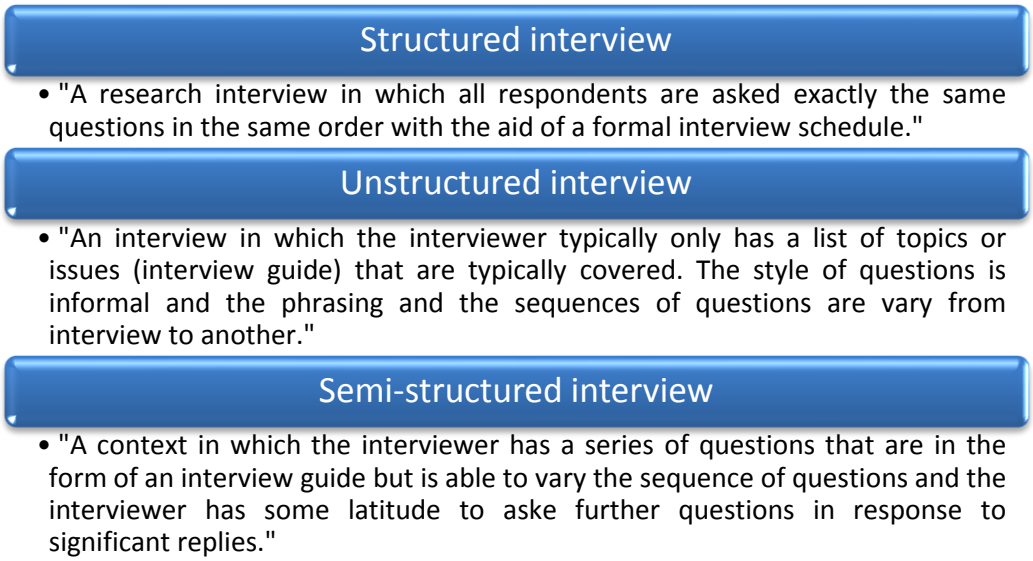


Figure 3.3 Types of interview (Bryman & Bell, 2011, p. 720)

An important consideration is that semi-structured interviews *do* indeed differ from their structured and unstructured counterparts (Figure 3.3). Semi-structured interviews require

pre-determination of the topic, the issues to be examined, the size of the sample group, the interviewees and the questions. Thus, it can be said that they differ in procedure, in that they limit the level of bias, and effectively minimise it. Semi-structured interviews need to be handled carefully during the design process, in order to minimise the level of bias (Bryman & Bell, 2011). In general, this research sees semi-structured interviews as direct verbal exchanges, in which the researcher tries to obtain information or opinions or beliefs relevant to the research context from the chosen interviewees.

It could be said that an advantage of in-depth interview processes are that they create a more accurate and clearer picture regarding the respondents' views and position or behaviour, regarding a particular topic of interest. Arguably, it can be said that this is due to the use of open-ended questions, giving interviewees more flexibility to answer according to their own beliefs, with fewer limitations or very few options (Easterby-Smith *et al.*, 2012). This type of method of collecting data can suit certain studies exceedingly well, for example when complicated or sensitive issues are discussed, and interviewers are required to ask for further answers or opinions regarding an issue. This type of method allows for a more effective and exploratory method in terms of inductive types of study (Tashakkori & Teddlie, 2010). Nevertheless, it also has some limitations, which include the interviewer needing to be skilled and cautious. Moreover, the interviewer needs to be well-informed regarding the study, the purpose of the study and the aims of the study, the outcome being also dependent on the skills of the interviewer, and whether or not he/she probes for further insights and supplementary information (Bryman & Bell, 2011).

In this research, semi-structured interviews were conducted as a supportive data source in the exploratory (empirical) study. These interviews were recorded for better analysis and comparison with the focus group study and the findings from the literature (3 interviews were audio and note-recorded & 5 interviews were note-recorded only). They were conducted between July and December 2010, with carefully selected and expert practitioners in the field of OB, electronic marketing and national cultural studies. Two of these interviews were in the interviewees' offices, while the rest were in hotel lobbies and lounges, for the convenience of the interviewees, and for a more relaxed and amicable environment. The duration of the interviews was between one hour and two hours. The interviewees were informed about their right to terminate the interview at any stage and the details of the researcher and his supervisor were provided in consent form, in order to allow interviewees to have the option of contact if necessary. Three interviewees found that audio recording was convenient, while the others disagreed. Therefore, and for a more amenable environment, three interviews were audio recorded and five were recorded by hand-written notes.

Eight carefully selected expert practitioners were interviewed using semi-structured interviews, which lasted from between one hour and two hours. It provided an opportunity to obtain an overview of the cultural impact of technology adoption in general, and OB specifically, in addition to the possible challenges facing banks and relevant organisations. Furthermore, the interviews concentrated on exploring and discussing the most important factors relevant to a culture that affected technology acceptance and OB adoption. Participants were carefully chosen, after several personal visits to three universities and banks to meet the most appropriate interviewees, who were classified according to their involvement with e-marketing, cultural issues and OB, besides their experience outside

KSA. The decision as to the choice of interviewees was made with the kind help of two professors, who were experts in culture and business, and one of those was selected to be an interviewee. Two of the interviews were conducted with practitioners in OB, who were working at two different big banks in KSA. Three interviews were conducted with three academics who were experts in the field of marketing and cultural issues. The last three interviews were with professionals in international marketing, with a minimum of ten years' international experience outside KSA (see appendices for interviewee details and questions).

The two practitioners in OB were from top management, and were chosen because of their involvement in a big OB project at their banks, as well as having experience outside KSA. The main aim of these interviews was to obtain an overview of the current position of OB, with the associated challenges facing Saudi banks. Although these two interviews were helpful in understanding the current situation and the challenges facing banks to move their customers towards OB, the researcher did not gain a huge advantage regarding the design of the proposed model from these two interviews, because of the lack in knowledge regarding national and international cultures. Therefore, the researcher felt that these two interviews with the OB practitioners fulfilled his need, and no further information would help to improve the design of the final model proposed from the OB practitioners' points of view.

Other semi-structured interviews were conducted with three professors from three different Saudi universities, with a research interest relevant to the current research questions. The rest of the semi-structured interviews were conducted with three professionals in

international marketing and management, with international experience outside KSA. From these two types of interviewees (professionals and academics), the researcher obtained valuable information from discussion with persons of respected knowledge and experience. The main reason why the information and knowledge was rich from the last two types of interviews was the combination of knowledge in the field and the experience with international and national cultures possessed by the interviewees, which was not the case with the OB practitioners.

The researcher agrees with Yin (2009), who argues that the key benefit of semi-structured interviews is the flexibility they offer to understand the researched phenomena, by receiving detailed information from the interviewees. As Denzin and Lincoln (2012) claim, the researcher develops his comprehensive understanding of the wider aspects of the impact of national culture on OB and technology adoption in KSA.

The researcher conducted eight semi-structured interviews in order to better understand how Saudis identify the important factors that impact on their decisions as to whether or not to adopt OB. In addition, he was searching for a consensus on identification of significant factors to build on the literature. The focus groups (Focus Group 1) provided the main input semi-structured interviews. According to Lazar *et al.* (2010), the recording and analysis of interviews validate findings and help to achieve the research aim. Although there are several approaches to the analysis of the transcripts (one being thematic / content analysis), the main aim was to identify the important ideas raised by the interviewees. According to Lazar *et al.* (2010), researchers should choose a method that suits their way of thinking, in order to generate accurate findings. This research followed a systematic

method (affinity diagrams by Beyer and Holtzblatt, 1998) to identify ideas that were raised in the interviews, which allowed the researcher to identify the most important factors, depending on the immediate responses of the interviewees to each question (Lazar *et al.*, 2010). The interview questions (see appendix) were designed carefully to facilitate interviewees' rapid decisions for easy analysis.

Table 3-3 Summary of semi-structured interviews conducted.

	Interviewees	International experience	Interview length	Date
1	The General Manager of Internet Banking in a big Saudi bank.	7 years (USA & UK)	01:15:00	15.7.2010
2	The Manager of Information Technology and the Development Department in a big Saudi bank.	8 years (USA)	01:45:00	12.8.2010
3	Full Professor in international marketing, Gassim University.	9 years (USA)	01:40:00	11.9.2010
4	Executive manager in a business solutions company.	10 years (USA)	01:30:00	18.9.2010
5	An owner of a leader consultation company working with banks and the Saudi Government.	17 years (USA)	55:00:00	22.9.2010
6	Professor in business management and a consultant for Minister of Commerce and Industry.	12 years (USA & UK)	01:35:00	7.10.2010
7	Professor in strategic management and innovation and one of the principal authors on the subject of culture and society.	5 years (UK)	01:30:00	8.10.2010
8	A consultant in business system development (also an academic).	11 years (USA)	1:50:00	13.12.2010
The interview discussion was in three parts:				
1- Efforts that have been made in OB in Saudi Arabia. 2- The role of social factors and culture in OB acceptance. 3- Evaluation of the factors from focus group 1 and generating new ideas and factors that had not been realised.				

The discussion was divided into three parts:

1 - The efforts that have been made in OB in Saudi Arabia.

According to the interviews, the OB market in the KSA is one of the most advanced markets, not only in Saudi Arabia, but in the majority of Arabic countries. The majority of the interviewees confirmed that OB services in KSA are better than in the majority of developed countries. They attributed this to the high income of Saudi banks, which allowed them to develop their services easily. The Internet banking manager, for example, stated that the OB services provided in the Saudi banks were more advanced than those in the majority of American banks. The majority of the interviewees acknowledged the efforts that had been made by Saudi banks, although the infrastructure was not sufficiently appropriate for e-commerce in general. It was clear from the interviews that high competition between banks guarantees continued improvement in OB services. The point that was raised by government authority was that the efforts to improve Internet services in general were appreciated, but they were not up the level of the status of Saudi Arabia. They confirmed that Internet services in the majority of small cities was unreliable, and might slow other organisations in developing their online services.

2 - The role of culture in OB acceptance.

The majority of the interviewees believed in the significant impact of culture on people's behaviour in general. In contrast, the technical interviewees did not see any cultural influence on the adoption of OB, but they believed that perfect services would attract customers in any culture. However, the majority confirmed the role of culture in technology adoption in general and in OB specifically. The interviewees differed in separating Saudi culture from other cultures. Three out of eight recognised it as Arabic culture, with no difference between the other Arabic countries, while four differentiated

GCC country culture from other Arabic countries' culture. Only one interviewee argued that the world had become a small village, with no differences between cultures that could affect OB acceptance. The majority of the interviewees believed that Saudi Arabia had common cultural characteristics with the other GCC countries. The majority confirmed that social relationships, as well as lifestyle, were the most important issues to make Saudi culture special, compared with other Gulf countries. It can be seen from the interviews that Saudi culture, as in any other culture, can play a key role in adopting new technology.

3 - Evaluation of the factors from Focus Group 1, and the factors that they recommended, but which had not been raised before.

This part of the interview aimed to reach consensus in terms of sorting out the factors that significantly built on the literature and the Focus Groups. According to Lazar *et al.* (2010), the recording and analysis of interviews improves the validation of findings; it helps to achieve the research aim, and is appropriate in discovering ways to generate accurate findings. This research followed a system to identify the most important factors according to the interviewees' immediate responses to each question. The questions for the third part (see appendix) were designed to acquire interviewee decisions carefully, and for easy access, regarding the factors impacting customers' acceptance of OB.

From the interviews, there was agreement among interviewees on the impact of controlling customers' intention to act. In addition they agreed that controlling customers' intentions is possible in any cultural context, but with some differences. There was agreement (6 out of 8 interviewees) on the impact of personal image on enhancing customers' intention to use

OB. Perceived image was therefore included in the initial model. In addition, they agreed (7 out of 8 interviewees) on the significant impact of the number of people using OB on customers' decisions. The number of people using OB (perceived quantity) was therefore included in the initial model.

Nearly all (7 out of 8) interviewees confirmed the impact of ease of use on OB acceptance. However, there was no consensus on the role of enjoyment (2 out of 8) in using OB. Therefore, perceived ease of use was included in the initial model, while perceived enjoyment was excluded. Usefulness of OB received consensus from 6 out of 8 interviewees. Interviewees had different perceptions regarding personal factors, as they were not sufficiently specific, so there was no major agreement (only 3 out of 8). In the same way, professional background had only average agreement (4 of 8), and was therefore excluded from the initial model. Although the quality of Internet connection can play a key role in OB acceptance, interviewees mostly agreed on its role in any type of culture, so there was no difference in Saudi culture.

A big majority of interviewees agreed on the role of customers' resistance to change (7 out of 8), as impacting on OB acceptance. According to the interviewees, security concerns play a key role in OB acceptance, but it is a common factor in any type of culture, and so the security factor was excluded from the conceptual model (4 out of 8). All of the interviewees believed that social influence played an important role in OB acceptance (8 out of 8). Therefore it was added to the conceptual model. There was an argument regarding the impact of trust, and its relation to culture. Some interviewees believed in its importance, but they did not see it as a culture-related factor (3 out of 8), while others

argued that, although it was not part of culture, it was affected mainly by the nature of the culture. Therefore, it was added to the conceptual model.

After the end of the third part of the interviews, the researcher investigated whether or not the interviewees believed in the impact of any further factor that had not been previously mentioned. Three of the interviewees had no further factors to add, while the rest continued the discussion by adding more factors. Several additional factors were raised, such as the quality of traditional branches, and the hospitality of bank employees especially for VIP customers, which could deter them from accepting OB services. However, there was no consensus among interviewees as to these two factors. The only issue that reached consensus among interviewees was the avoidance of any uncertain situation that could impact customers using OB. Uncertainty avoidance was, therefore, added to the conceptual model as an important factor, as suggested by the interviewees.

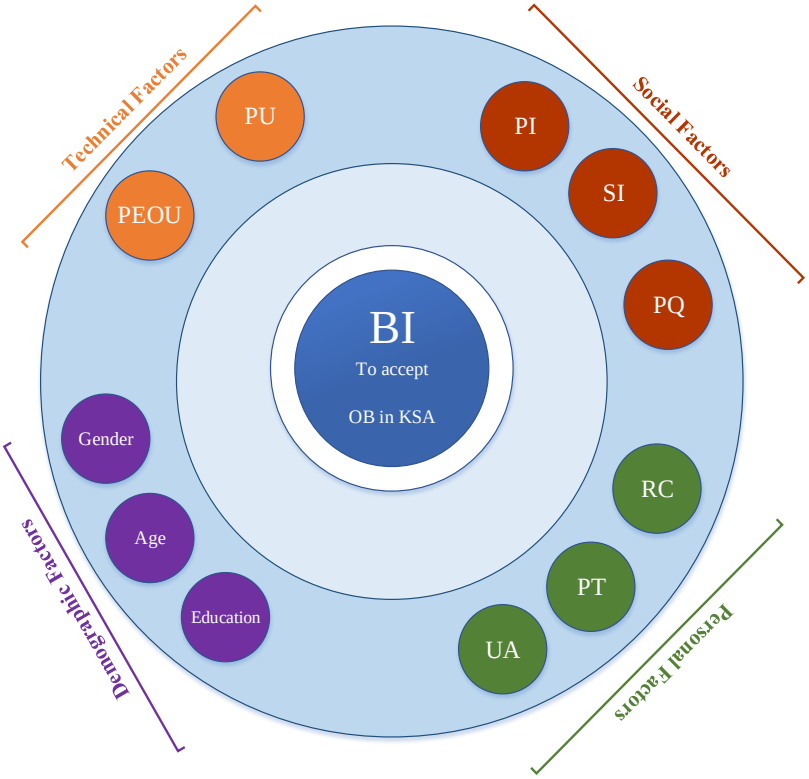


Figure 3.4 Factors impacting the acceptance of OB in KSA

3.5 The Second Focus Group

The second focus group was conducted after the interviews had been completed, and after the initial draft of the conceptual model had been designed. The main purpose was to discuss and investigate the relationships between the factors included in the initial conceptual model. Six participants were chosen voluntarily following a request for a participation in a focus group for a PhD research. The purpose of the research and the findings of the prior stages were clarified at the beginning for the six participants. Nine factors were discussed during two hours, and each participant had a small board with factors drawn on it. They were asked to draw lines between constructs to suggest relationships. At the end of the discussion, their final draft of the relationships between

factors was collected in. They mostly agreed on 9 new relationships that had not previously been introduced. After this step, the final draft of the proposed model was designed. Figure 3.5 shows the proposed model; the suggested new paths from the focus group are in dashed bold lines for illustration.

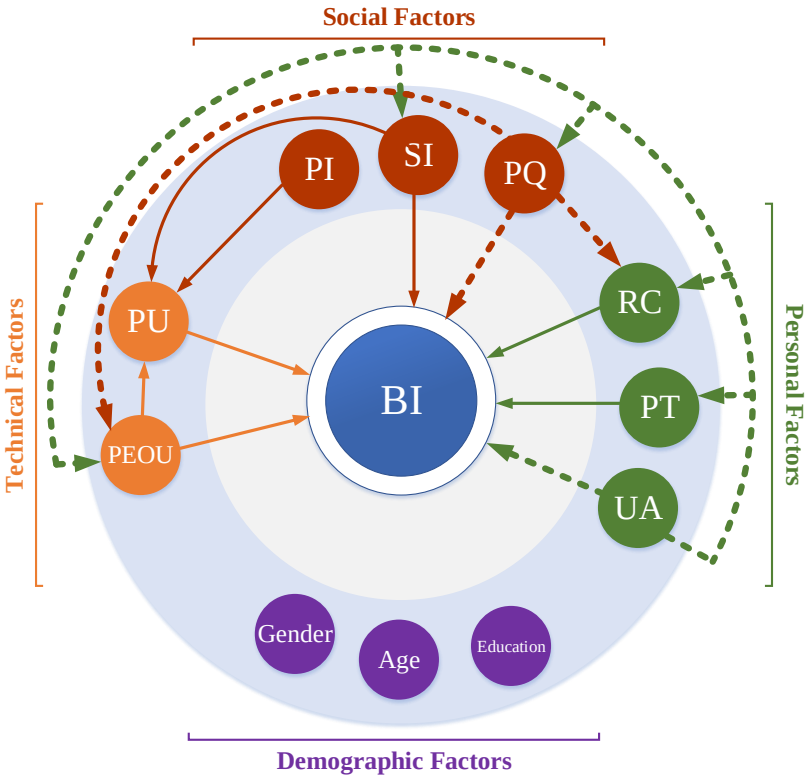


Figure 3.5 The Proposed Model

After the interviews and comparison of the audio records and notes with the focus group material and the relevant literature, the researcher was sufficiently satisfied with the reliability of the findings. The researcher found that banks and relevant organisations need to pay more attention to several factors that impact on the acceptance of their online products and services. By recognising the impact of these factors on the behaviours of customers, organisations' strategies can be developed to achieve the most effective results

in their business activities. In addition, the research found that the most salient factors impacting the acceptance of OB in KSA are eight factors, namely Resistance to Change; Perceived Trust; Perceived Image; Social Influence; Perceived Ease Of Use; Perceived Usefulness; Number of OB users (later called: Critical Mass / Perceived Quantity) and Uncertainty Avoidance. The Uncertainty Avoidance factor was newly added to this stage of the interviews, and then it was investigated further in the second focus group meeting, with support from the previous studies.

3.6 Conclusion

As previously stated, this study follows a research process based on the seven steps of the hypothetico-deductive method (Sekaran, 2013). After reviewing the literature and gathering the preliminary data from the first focus group and from the eight semi-structured interviews, the researcher was ready to proceed to the next step, which was to re-read his literature review, in order to identify how the chosen factors related to each other. The ideas were subsequently finalised in preparation for the second focus group meeting, which was to further investigate the relationships from the perceptions of Saudi customers. Then and there, the researcher will be able to design a model with the hypotheses combining all the relevant factors that affected users' acceptance of OB in KSA. The next chapter will discuss the conceptual model and its theoretical framework.

Chapter Four Theoretical Framework

4.1 Introduction

The literature indicated the need for a conceptual model concerning national cultural impact on user acceptance of technology, especially in developing countries, such as Saudi Arabia. Banks and related government authorities in Saudi Arabia have made great strides towards improving their e-services. However, these efforts have come with a lack of theoretical background. This research explores the main concerns, with the aim of providing a better understanding of people's acceptance and adoption of technology in the context of OB in Saudi Arabia. Several models and theories were discussed and compared, and other relevant research papers were reviewed.

The literature suggested various factors as determinants of people's adoption of technology in general, and OB specifically. It is not ideal for a simple conceptual model to include all these factors to be able to explain customers' behaviour. Therefore, to narrow these factors down, and to identify the factors that did not emerge in the literature, the present study employs a qualitative investigation (Tables 2.1 & 2.3). The findings from the literature review and the empirical study are used in this chapter (theoretical framework), in order to develop a conceptual model to explain the salient factors affecting user acceptance of technology in the context of OB in Saudi Arabia. The chapter discusses a proposed model using that particular framework.

4.2 The outcomes of empirical study

The outcome of Chapter two was used as input to chapter three (empirical qualitative study), in order to arrive at an appropriate conceptual model to explain the main factors

affecting user acceptance of OB within the national cultural context of Saudi Arabia. The exploratory (qualitative) study was a combination of two focus groups and eight interviews (see Chapter three). Figure 4.1 illustrates the process of the research and the steps taken to arrive at this stage.

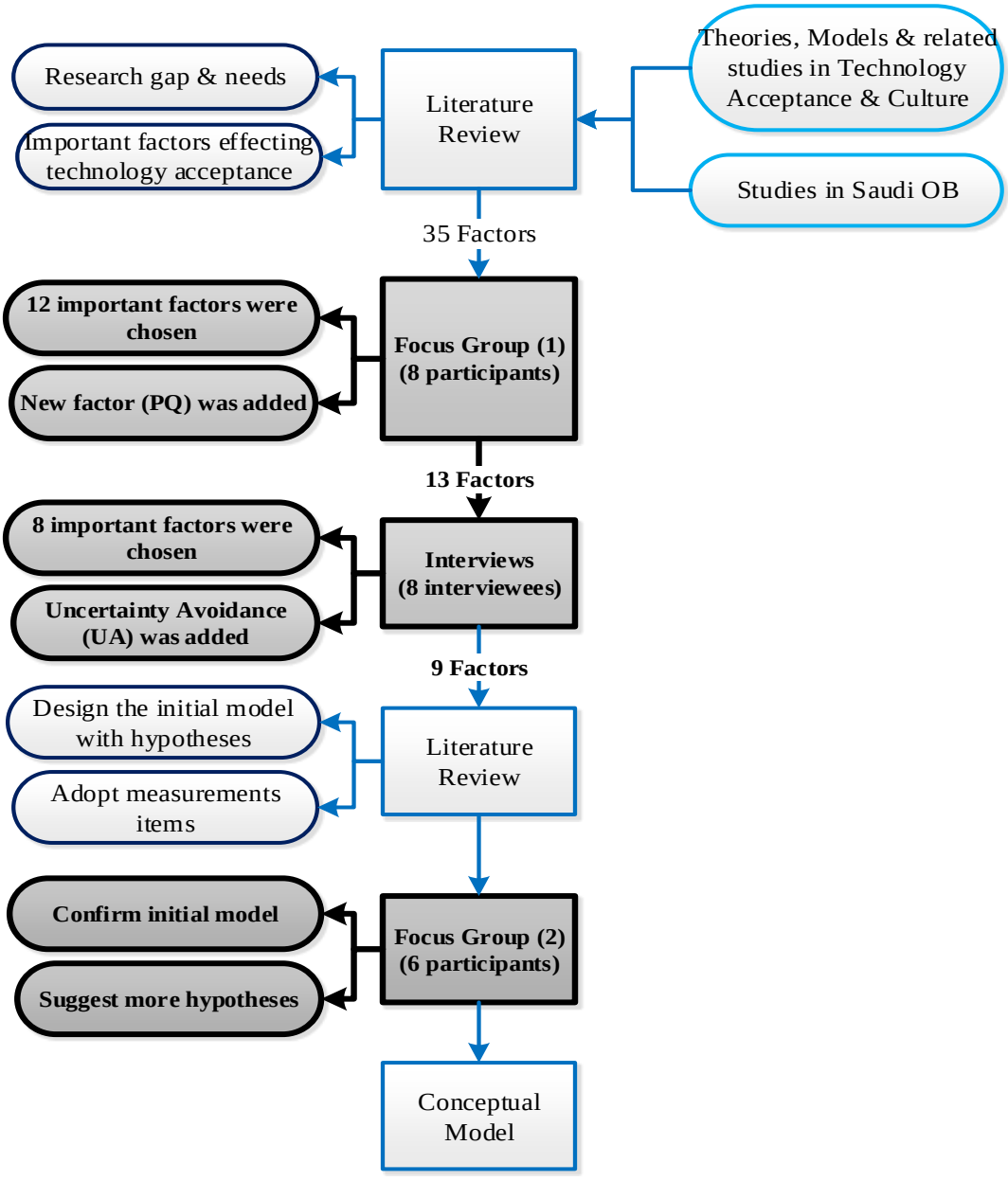


Figure 4.1 The empirical study' process

After conducting the literature review and the exploratory (qualitative) study, nine factors were suggested to explain customers' behaviour towards OB in Saudi Arabia: Behavioural

Intention (BI); Perceived Ease Of Use (PEOU); Perceived Usefulness (PU); Resistance to Change (RC); Perceived Trust (PT); Perceived Quantity (PQ); Social Influence (SI); Perceived Image (PI) and Uncertainty Avoidance (UA) and also three demographic variables: gender, age and education level as exploratory factors (Figure 4.2). The remainder of this chapter justifies the relationships between the constructs and the research hypotheses.

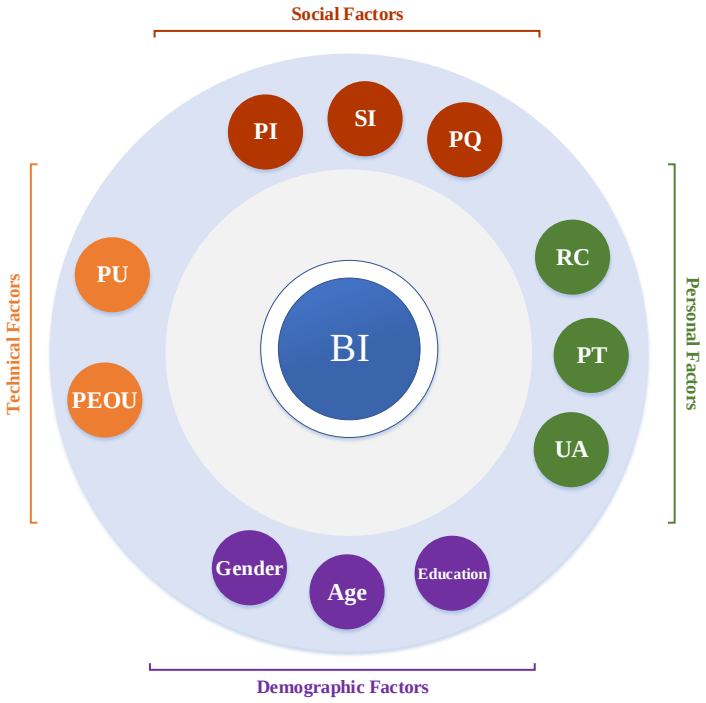


Figure 4.2 Factors that explain customers' behaviour towards OB in Saudi Arabia

4.3 Behavioural Intention (BI)

BI can be seen as a person's perceived likelihood to adopt or use a certain tool, or to engage in a given behaviour at a time in the future (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh & Brown, 2001; Venkatesh *et al.*, 2003). It is extensively agreed that

behavioural intention is the main predictor for technology adoption, and has a direct influence on actual behaviour when adopting a technology (Davis, 1989; Ajzen, 1991; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2012).

According to several authors such as Davis (1989) and Chau (1996), behavioural intention can be considered as the major determinant of usage behaviour rather than actual use. Furthermore and according to Deng et al. (2005), many studies have used samples of on-going use rather than initial exposure to predict post-implementation usage using BI as the dependant variable such as Venkatesh and Davis (2000); Taylor and Todd (1995); Chau and Hu (2002) and Hong, Thong, Wong and Tam (2002).

As the majority of the research's sample are OB users already, the researcher will follow many big authors who are using behavioral intention as the dependent variable with a whole sample or majority of the sample are users or adopters already (Venkatesh & Davis, 2000, Taylor & Todd, 1995, Chau & Hu, 2002, Hong, et al., 2002, Hu, et al., 1999, Riemenschneider, Harrison & Mykytyn, 2003, Subramanian, 1994, Lu, Yao & Yu, 2005, Hsu & Lu, 2003, Chau & Lai, 2003, Lee, 2009, Ariff, Min, Zakuan, Ishak & Ismail, 2013, Alsajjan, 2008, Chan & Lu, 2004, Chau, 1996, Ju & Hsu, 2004, Hsu et al., 2006, Min, 2007, Khalifa & Liu, 2007, Gopi & Ramayah, 2007, Ramayah, Rouibah, Gopi, & Rangel, 2009). Accordingly, and as BI is recognised as the main predictor of people's behaviours, this research will use BI as the dependent construct, explaining people's intention to use OB in Saudi Arabia.

Furthermore, and according to the literature findings and the results of the qualitative study that was conducted, this study assumes that users' BI to accept and use OB is affected by their beliefs, namely Perceived Usefulness (PU), Resistance to Change (RC), Perceived Trust (PT), Perceived Ease Of Use (PEOU), Social Influence (SI), Perceived Quantity (PQ), Uncertainty Avoidance (UA) and Perceived Image (PI). Some of these beliefs are hypothesised to affect BI only directly, and some of them affect BI both directly and indirectly, while others may affect BI indirectly only. The rest of this chapter will investigate the relationship between BI and the other listed factors, arriving at a better explanation and prediction of customers' behaviour regarding OB in Saudi Arabia.

4.4 Perceived Usefulness (PU)

According to Davis (1989), beliefs are considered as significant variables, and, as behavioural variables, they shift people's performance from intentions to behaviours. In TAM for example, PU is a fixed belief, along with PEOU. They have the most significant and the largest impact on people's usage of technology. PU can be seen as being similar to the relative advantage of perceived characteristics in Rogers' Innovations Diffusion Theory (Venkatesh *et al.*, 2003). However, PU is defined in this study following Davis's (1989, p. 320) definition as: *"The degree to which a person believes that using a particular system would enhance his or her job performance"*. There is strong evidence that PU has a direct impact on technology adoption (Davis 1989; Thompson, Higgins & Howell 1991; Adams, Nelson & Todd 1992; Szajna 1994; Taylor & Todd 1995; Igbaria, Parasuraman & Baroudi 1996; Hendrickson & Collins 1996; Gefen & Straub 1997; Gefen & Keil 1998; Dishaw & Strong 1999; Teo, Lim & Lai 1999; Lederer *et al.*, 2000). Furthermore, TAM (Davis, 1989), C-TAM-TPB (Taylor & Todd, 1995) and TAM2

(Venkatesh & Davis, 2000) theorised direct impact from PU to BI to accept new technology. It has been found that PU is often demonstrated to be the strongest predictor of BI (Davis, 1989; Mathieson, 1991; Igbaria, Zinatelli, Cragg & Cavaye, 1997; Venkatesh & Davis, 2000; Gefen *et al.*, 2003 Venkatesh *et al.*, 2003). In the online context, some scholars (for example, Gefen & Straub, 1997; Lin & Lu, 2000; Koufaris, 2002; Pikkarainen *et al.*, 2004; Alsajjan & Dennis, 2010) support the notion of positive impact of PU on BI to use online services.

From the literature, there is clear evidence that PU has a significant influence on BI to accept new technology (Davis, 1986; Davis *et al.*, 1989; Taylor & Todd, 1995; Morris & Dillon, 1997) and to accept OB (Pikkarainen *et al.*, 2004; Wang *et al.*, 2003; Alsajjan & Dennis, 2010). From the evidence and from the support of the exploratory (qualitative) study, it is a good rationale to use PU as a direct determinant of BI in this cross-sectional study. Therefore, this study will look at Perceived Usefulness as a significant determinant of customers' intention to adopt and use OB.

Hypothesis 1: Customer's PU has a significant positive impact on his/her BI to use OB.

4.5 Perceived Ease of Use (PEOU)

PEOU is defined in this study following Davis (1989, p. 320), as "*the degree to which a person believes that using a particular system would be free from efforts*". From the

literature, there is clear evidence that PEOU is one of the key determinants of user acceptance, which has a positive impact on BI to adopt new technology (Davis *et al.*, 1989; Davis, 1989; Venkatesh & Davis, 2000; Wang *et al.*, 2003; Gefen *et al.*, 2003; Chan & Lu, 2004; Pikkarainen *et al.*, 2004). Furthermore, PEOU is hypothesized, in TAM for example, as a significant variable which impacts people intentions to adopt technology directly or indirectly (Davis *et al.*, 1989; Davis, 1989; Mathieson, 1991).

PEOU has been found to have a direct positive impact on people's adoption of technology (Venkatesh & Davis, 2000). While some studies found PEOU to be an insignificant factor influencing BI to accept new technology (e.g. Adams *et al.*, 1992; Struab *et al.*, 1997), it has been found to operate mainly through PU then BI (Davis *et al.*, 1989; Adams *et al.*, 1992; Gefen & Straub, 2000). Davis (1989, p. 334) confirms that "*from a causal perspective, the regression results suggest that ease of use may be an antecedent of usefulness, rather than a parallel, direct determinant of usage"*. Fusilier and Durlabhji (2005) found that, when people's perceptions about Internet usefulness are low, PEOU becomes a stronger predictor of BI. Therefore, PEOU has been found in the literature to have a positive significant relationship with BI, directly and indirectly, through PU, in the context of technology adoption in general (Adams *et al.*, 1992; Mathieson, 1991; Davis, 1989; Igbaria *et al.*, 1997; Venkatesh & Davis, 2000, Gefen & Straub, 2000; Fusilier & Durlabhji, 2005), in OB specifically (Wang *et al.*, 2003; Pikkarainen *et al.*, 2004) and in the context of Saudi OB (Alsajjan & Dennis, 2010).

From the literature above and supported by the exploratory (qualitative) study, there is clear evidence that PEOU has a significant impact on BI and PU. Therefore, it is a good

rationale to use PEOU as a direct determinant of BI and PU in this cross-sectional study. This study looks at PEOU as a significant direct determinant of customers' intention to adopt and use OB, and a significant indirect determinant of customers' intention to adopt and use OB through their perception about the usefulness of OB.

Hypothesis 2a: A customer's PEOU has a significant positive impact on his/her PU of OB.

Hypothesis 2b: A customer's PEOU has a significant positive impact on his/her BI to use OB.

4.6 Perceived Trust (PT)

Although PT is a key factor in many types of relationships, its definitions and conceptualizations vary among disciplines (Morgan & Hunt, 1994; Krauter-Grabner & Kaluscha, 2002; Chopra & Wallace, 2003). For example, trust is seen as a personal trait in the psychology field, as a social construct in the sociology field, and as a technique for economic choices in the economic field (Rousseau, Sitkin, Burt & Camerer, 1998; McKnight & Chervany, 2002; Yap, Wong, Loh, & Bak, 2010). In the context of marketing, Rousseau *et al.* (1998, p. 394) describe trust as "*a psychological state composing the intention to accept vulnerability based on expectations about the intentions or behaviour of another*". Ribbink, Van Riel, Liljander and Streukens (2004, p. 447) offered a revised definition that can be used in the online context. They defined electronic trust as the "*degree of confidence a customer has in online exchanges or in the online exchange channels*". As a result, customers may find it difficult to adopt OB if they have low trust in Internet businesses (Grewal, Hardesty & Iyer, 2004; Butt & Aftab, 2013).

Increased trust can fix people's uncertainty about the intentions, motives and prospective actions of people and organisations (Siala, O'Keefe & Hone, 2004; Yap *et al.*, 2010). Therefore, a low level of trust in Internet providers and transactions can be seen as a significant barrier to e-channels diffusion (Alsajjan & Dennis, 2010). Furthermore, consumers' PT in online transactions is important and has been considered as a key factor for e-commerce improvement (Yousafzai, Pallister & Foxall, 2003). Recent studies show that PT has a serious impact on customers' intention to engage in Internet exchange of sensitive personal data and exchanges of money (Ariff, Yeow, Zakuan, Jusoh, & Bahari, 2012). McKnight, Cummings and Chervany (1998) incorporate PT into TRA as a belief that affects intention to engage in behaviour related to specific providers. Stewart (2003) goes further by claiming that consumers' intentions to adopt a new technology have an implied trust.

It has been agreed that PT is more significant in OB, as transactions of this nature have sensitive data, and organisations involved in the financial transactions are anxious regarding accessing critical data and information transferred through online channels (Suh & Han, 2002; Stewart, 2003; Alsajjan & Dennis, 2010; Chandio, Irani, Abbasi, & Nizamani, 2013). Many studies have added PT to the technology adoption theories in the context of e-commerce and OB (Gefen *et al.*, 2003; Pavlou, 2003; Lee, 2009; Akhlaq & Ahmed, 2013).

Supported by the exploratory (qualitative) study and from the evidence above, it is a good rationale to use PT as a direct determinant of BI in this cross-sectional study. This study looks at PT as a significant determinant of customers' intention to adopt and use OB.

Hypothesis 3: A Customer's PT in an OB site has a significant positive impact on his/her BI to use it.

4.7 Resistance to Change (RC)

RC was defined by Hultman (2003, p. 693) as "*a state of mind reflecting unwillingness or unreceptiveness to change in the ways people think or behave*". It can be defined also as "*the set of responses to change that are negative, along emotional, cognitive and intentional dimensions*" (Piderit, 2000, p. 783). According to Giangreco (2002, p. 14), RC is "*a form of organizational dissent to a change process (or practices) that the individual considers unpleasant or disagreeable or inconvenient on the basis of personal and/or group evaluations*".

In the general field of technology adoption, several authors have discussed customers' resistance. RC means resistance to change from traditional technologies to more up-to-date ones, and others concentrate their discussion on customers' RC towards OB (Sathye, 1999; Alagheband, 2006; Laukkanen, Sinkkonen & Laukkanen, 2008; Laukkanen & Kiviniemi, 2010; Yousafzai & Yani-de-Soriano, 2012; Mzoughi & M'Sallem, 2013). In general, they find that customers may be reluctant to change their current ways of operating, unless they are required to do so, or they discover the benefits of change. In electronic banking, it has

been found that customers have a high level of inertia in changing their present ways of banking operations to adopting new ones (for example: Daniel, 1999; Patsiotis, Hughes, & Webber, 2012).

There is another point of view concerning customers' RC (Quinn & Mueller, 1962; Alagheband, 2006; Mzoughi & M'Sallem, 2013), where customers refuse to change their current mode of service or product to a new one, because the existing one fulfils their needs adequately. In the context of OB, it can be seen that telephone banking, ATMs and traditional branches are the existing modes of transacting banking business. It has been found that customers' resistance to changing their current banking operations to Internet ones is one of the greatest barriers for banks who wish to improve online services (Alagheband, 2006; Mzoughi & M'Sallem, 2013).

In addition, technology phobia (technophobia) can be seen as a reason for customers' resistance to adopt OB, especially as far as senior citizens are concerned (Sathye, 1999; Laukkanen, *et al.*, 2008). Similarly, Lapointe and Rivard (2005) found that the majority of research work in people's RC have a common idea that people avoid change as they perceive change contains some level of threat. They explain that people do not resist the change; however, they try to avoid any perceived threat that is linked to change. Perceived threats create overwhelming emotional pain or perceptions of a dangerous situation (Nov & Schecter, 2012).

It has been found that RC has a significant impact on customers' attitudes towards using OB (Sathye, 1999; Agarwal & Karahanna, 2000; Alagheband, 2006; Al-Somali *et al.*, 2009; and Rammile & Nel, 2012). RC can be seen as a critical factor influencing new technology adoption and continuous use (Nov & Schecter, 2012). Hofstede *et al.* (2010) found that people from high uncertainty avoidance countries have more emotional RC. Therefore, Klaus and Blanton (2010) recommend further investigation to understand the nature of people's RC in new technology contexts.

From the literature, there is clear evidence that RC has a significant impact on attitude, and this is fully supported by the exploratory (qualitative) study, which confirms the important impact of RC on OB acceptance. Therefore, it is a good rationale to use RC as a direct determinant of BI to use OB. This study hypothesises RC to have a significant direct impact on customer's BI to adopt and use OB.

Hypothesis 4: RC has a significant negative impact on customer's BI towards using OB.

4.8 Social Factors

It has been said that cultural, social, personal and psychological characteristics have a major impact on people's intentions and actions (Kotler *et al.*, 2008). From a cultural perceptive, the differences between the 'individualist' and 'collectivist' dimensions can explain some of the differences in human behaviours (Brew, Hesketh & Taylor, 2001; Hofstede *et al.*, 2010). Regarding collectivism, people in high-ranking countries, such as Saudi Arabia, are influenced strongly by social pressure. Anandarajan, Igbaria and Anakwe (2002) go further, assuming that social pressure is the main reason behind

individuals' adoption and use of new technology in a collaborative culture. The following sub-sections discuss the social aspects: Perceived Quantity, Social Influence and Perceived Image.

4.8.1 Critical Mass / Perceived Quantity (PQ)

From the empirical study, it was found that the number of OB users around a person will have a significant impact on his / her intention to use OB. This finding caused the researcher to investigate the literature to find support for this view. Although there is no suitable contracts in the literature describe what participants in focus groups meant, 'Critical Mass' was the most similar factor in the literature, which is widely used in interaction technology. According to Rogers (2010, p. 313), critical mass can be defined as "*the point at which enough individuals have adopted an innovation so that the innovation's further rate of adoption becomes self-sustaining*". Oliver, Marwell and Teixeira (1985, p. 523) treat critical mass as "*some threshold of participants or actions [that] has to be crossed before a social movement explodes into being*". As critical mass refers to the perceptions of whether an innovation has attracted a sufficient number of users, banks can benefit from a community only if a certain threshold of OB users is crossed, and the perceived critical mass is high (Koch, Toker, & Brulez; 2011). However, Shen, Cheung and Lee (2013) argue that although actual critical mass is difficult to measure, an individual may have a perception of whether an innovation reaches the threshold of adopters, and that perception is called perceived critical mass.

Previous studies have examined the role of perceived critical mass, and found direct and indirect impacts on BI.

Luo, Luo and Strong (2000) investigated the effect of critical mass on new technology adoption, using the case of a groupware system; they found it to be significant. Hsu and Lu (2004) discovered a significant positive impact of critical mass on attitudes towards playing online games. Kleijnen, De Ruyter, & Wetzels (2004) found critical mass had a positive impact on wireless services adoption. It has been found that the number of adopters of a new technology in a community increase its perceived critical mass (Glass & Li, 2010; Koch *et al.*, 2011). In another case, Song, Parry & Kawakami (2009) found that a perceived installed (customer) base of digital music influenced the adoption of digital music players, which raised the impact of the community. It has been confirmed that the value of new technology to its current and potential users increases with the number of its users (Luo *et al.*, 2000; Hsu and Lu, 2004; Koch *et al.*, 2011). Furthermore, Cheng, Tsai, Cheng & Chen (2012) found that previous users of online services influence new users in the community. Lou *et al.* (2000); Hsu and Lu (2004); and Van Slyke, Ilie, Lou and Stafford (2007) classify critical mass as a social factor. Empirical studies included critical mass as one of social factors, and found it positively affected people's intention (Cheng *et al.*, 2012). Therefore, critical mass is used for services and products which have direct network externalities (Mahler & Rogers, 1999). However, Mahler and Rogers (1999) found that the rate of adoption for mobile telephones in the US was affected by critical mass. They therefore concluded that "direct network externalities" is not a condition for a new technology to have a critical mass affecting its adoption.

It is well known that one of the challenges that face banks wishing to invest in online services is that an increase in the number of Internet banking users improved the perceived

critical mass for the remaining customers (Liao & Cheung, 2002; Lee, 2009; Ofori-Dwumfuo & Dankwah, 2013). To the best of the researcher's knowledge, critical mass has not been used in the field of OB, apart from a study by Liao *et al.* (1999), who investigated the role of critical mass on subjective norms in the context of electronic banking, and found it to have a statistically significant impact. However, it is emphasized by Luarn and Lin (2005) that to improve the expectancy of intention to use Internet banking, supplementary variables need to be added and investigated, such as critical mass.

Although critical mass reflects the perceptions of people regarding the number of people using a technology, there is a different viewpoint raised by Mahler and Rogers (1999). They criticise "Critical Mass" as more of a technical term needing careful measurement and special equations. Furthermore, critical mass is used, in the literature, with the type of technology that has direct network externalities. By looking to the definition of critical mass its usage in the literature and with support with the above discussion and argument by Mahler and Rogers (1999), this research finds it justified to add a new construct, termed Perceived Quantity (PQ), which, to the best of the researcher's knowledge, has not been used in previous studies. The qualitative study in Chapter three suggests that PQ will have a direct impact on BI, PEOU and RC. Therefore, it would be rational to add PQ to the proposed model, as a factor that influences intentions both directly and indirectly through PEOU and RC. Furthermore, this research will amend the measurements of critical mass to suite the new constructs "perceived quantity" through carefully designed process presented in section 5.7.4.

Hypothesis 5a: PQ has a significant positive impact on his/her BI to use OB.

Hypothesis 5b: PQ has a significant positive impact on his/her PEOU of OB.

Hypothesis 5c: PQ has a significant negative impact on his/her RC towards OB.

4.8.2 Social Influence (SI)

The second construct in the social factors is that of social influence. Subjective norms, social influence, social norms and normative pressure are equivalent to each other and are used interchangeably in the literature (Taylor & Todd, 1995). However, this thesis refers to social influence as "an individual's perception of social pressure to perform or not to perform a specific behaviour or action" (Fishbein & Ajzen, 1975; Ajzen, 1991; Mathieson, 1991). It has been found that SI is a function of beliefs about the expectations of important referent others, and the self-motivation to follow these referents. Furthermore, it has been found that the BI to perform a specific behaviour is determined by personal factors, rather than social factors (Ramayah, et al., 2009).

Human and social factors play a key role in the acceptance of new technology (Chen *et al.*, 2007; and Wu & Chen, 2005). According to Venkatesh and Morris (2000), SI has a big role in determining people's adoption and usage behaviour as regards new technology. Therefore, a bank's customers may have positive or negative perceptions towards adopting and using OB, because of the perceptions of friends, family members or the community. This is supported by Davis *et al.* (1989), who believe that people might adopt a new technology through following others' beliefs, rather than their own. Several studies found that SI played an extra role in influencing the adoption of communication technology (Chiu, Cheung, & Lee, 2008; Shen, Cheung, Lee, & Chen, 2011).

Admittedly, SI needs to be investigated more, regarding its impact on technology acceptance and usage (Davis *et al.*, 1989; Chen, Fan & Farn., 2007; and Wu & Chen, 2005). From the literature, the impact of SI on BI is inconsistent. SI has been found to have no significant impact on BI (Mathieson, 1991; Lewis, Agarwal, & Sambamurthy, 2003; Alsajjan & Dennis, 2010; and Montazemi & Saremi, 2013). Conversely, it has been found that SI has a positive direct relationship with BI (Taylor & Todd, 1995; Venkatesh & Davis, 2000; Ramayah *et al.*, 2009; Chan & Lu, 2004; Athiyaman, 2002; and Gopi & Ramayah, 2007). Further, it has been theorized that SI has a positive impact on PU (TAM2; Kaba & Osei-Bryson, 2013; Montazemi & Saremi, 2013).

Therefore, and from the evidence from the literature review and the qualitative study, it is a good rationale to use SI as the direct determinant of BI and PU in this cross-sectional study. This study will look at SI as a significant determinant of customers' intention to adopt and use OB, with their perceptions about its usefulness.

Hypothesis 6a: SI has a significant positive impact on users' BI to use OB.

Hypothesis 6b: SI has a significant positive impact on users' PU of OB.

4.8.3 Perceived Image (PI)

The third construct in social factors is the construct of perceived image. PI has been added to technology adoption models as a construct by several researchers, such as Moore and Benbasat (1991), who added PI to TAM. It was defined in their research as "*the degree to which use of an innovation is perceived to enhance one's image of status in one's social*

system" (Moore & Benbasat, 1991, p.195). Venkatesh and Davis (2000) modified TAM to TAM2 by adding the construct of PI, hypothesising that it would have a positive direct impact on PU and a positive indirect impact on BI. They found that PI had a significant impact on people's acceptance and adoption of technology through PU. Several researchers have found that people's perceptions of their image influenced their attitude and BI to adopt or use new technology (Karahanna, Straub & Chervany, 1999; Anandarajan *et al.*, 2002).

Furthermore, in less developed countries, Kaba & Osei-Bryson (2013) found that attitude is explained mainly by social pressure, namely PI, and they suggest that the social relations aspects of IT adoption may be an important addition to technology adoption in some cultural contexts. From a cultural perceptive, the differences between the individual and collective dimensions can explain the differences between human behaviours (Brew *et al.*, 2001; Hofstede, 2001). Regarding collectivism, people in high-ranking countries like Saudi Arabia, are influenced strongly by social pressure through several factors such as SI, PI and PQ. Anandarajan *et al.* (2002) go further, by assuming that social pressure is the main reason behind individuals' adoption and use of new technology in a collaborative culture. Lu, et al. (2005) and Yang, Moon and Rowley (2009) besides TAM2 hypothesised PI to have a positive direct impact on PU and a positive indirect impact on BI and they confirmed the hypothesis.

From the literature, it can be seen that PI is one of the most significant drivers of information and communication technology adoption and usage. With further support from

the qualitative study, this research supposes that adopting a new technology, such as OB, maintains the personal image that determines PU directly and BI indirectly through PU.

Hypothesis 7: PI from using OB has a significant positive impact on PU of OB.

4.9 Uncertainty Avoidance (UA)

It has been established in the literature that countries, locations, groups and other ethnic classifications have cultural differences (Hofstede, 2001). Although understanding these differences improves the performance of multinational organizations, it can provide big advantages to introduce new technologies for local organizations that have been used in other cultures (Chau *et al.*, 2002; Srite & Karahanna, 2006; Al-Gahtani *et al.*, 2007 and Sherer, Kohli, Yao & Cederlund 2011). As a result, the consideration of cultural differences has become a significant factor in adopting new technology or applying new systems. On the other hand, culture is a most difficult issue to investigate and measure (Hasan & Ditsa, 1999; Myers & Tan, 2003; Leidner & Kayworth, 2006).

The findings of the empirical study suggested that uncertainty avoidance have a significant impact on people's intention to use OB. Therefore, the UA construct is included in this study, as adopting new technology such as OB has a certain amount of uncertainty. Hofstede (2001, p. 108) defines UA as "*the degree to which people in a culture prefer structured over unstructured situations*". Therefore, in strong UA cultures, individuals are threatened by unclear, unknown or uncertain situations. According to Sun and Zhang (2006), Srite and Karahanna (2006) and Yoon (2009), individuals in strong UA cultures

are less likely to look at a new method of IT as a useful tool, and they prefer to use an existing old method, or a medium of higher information richness under the same situation.

In addition, individuals who have high UA are more likely to be influenced by local communities and others' opinions, to reduce uncertainty and initiate action (Sun & Zhang, 2006; Srite & Karahanna, 2006; Pookulangara & Koesler, 2011; Hwang & Lee, 2012). Furthermore, it has been found that the influence of PT on BI is less important for the individuals with high UA (Yoon, 2009; Hwang & Lee, 2012). According to Pookulangara and Koesler (2011) and Hwang & Lee (2012), PEOU has less influence on BI for individuals with high UA. All of the discussed studies used UA as a moderator, while only one study, to the best of the researcher's knowledge, included UA as a determinant factor. Souiden, Pons and Mayrand (2011) examined customer behaviour in the context of Chinese culture, a developing nation, to assess the impact of country image on customer uncertainty and intention to purchase high technology products. Based on a sample of 479 Chinese consumers, they found that country image had a significant impact, reducing consumer uncertainty and increasing intention to purchase.

According to Hofstede (2010), Saudi people are classified as being high uncertainty avoiders. Therefore, from the evidence, from the above discussion and from the qualitative study, there is good justification to include UA in the proposed model. Prior research included UA as a moderator, whereas this research uses it as a determinant, for several reasons, one being that this research is not a cross-cultural study measuring the moderating role of UA. Apart from a single study in the literature (Souiden *et al.*, 2011), UA has not been investigated as a determinant factor, which is a valuable contribution to this research.

Lonner and Adamopoulos (1997) criticise researchers who use cultural factors, such as UA, as a moderator variable that produces unpredictability findings. The authors add that putting culture in the secondary position of theoretical variables does not provide an in-depth and accurate explanation. They recommend future studies to include UA and other cultural factors as determinants rather than moderators.

This study assumes UA to have a significant impact on BI, PEOU, SI, PT, RC and PQ.

Hypothesis H8a: UA has a significant negative impact on BI to use OB.

Hypothesis H8b: UA has a significant positive impact on SI.

Hypothesis H8c: UA has a significant negative impact on PEOU.

Hypothesis H8d: UA has a significant positive impact on RC.

Hypothesis H8e: UA has a significant negative impact on PT.

Hypothesis H8f: UA has a significant positive impact on PQ.

4.10 Demographic Variables

Numerous studies, from the early days of technology introduction up to the present time, have investigated the role of demographic differences on technology adoption (Leblanc, 1990; Abdul-Muhmin, 1998; Venkatesh *et al.*, 2000; Venkatesh *et al.*, 2003; Wixom & Todd, 2005; Porter & Donthu, 2006; Rogers, 2010; Venkatesh *et al.*, 2012). Better understanding of the demographic differences between users and non-users and their impact on intentions helps organisations to attain strategic goals through customers (Venkatesh, *et al.*, 2012). According to Morgan (1986), demographic variables can be used as descriptive variables as well as explanatory variables. Consequently, this research uses the demographic variables: gender, age and education level as exploratory (descriptive) variables following several authors (Davis, 1986 & 1989, Fishbein & Ajzen, 1980, Ajzen,

1985, Davis, 1993, Lu et al., 2005, Alsajjan & Dennis, 2010, Irani, 2009, Lee, 2008) who are using the demographic variables as exploratory. Furthermore, moderation role of the demographic variables can be investigated for further explanation.

The proposed research hypotheses are summarised in Table 3.1 below.

Table 4-1 Summary of the Research Hypotheses

H No.	Direction	Hypothesis
H1	PU → BI	PU has a significant positive impact on BI.
H2a	PEOU → BI	PEOU has a significant positive impact on BI.
H2b	PEOU → PU	PEOU has a significant positive impact on PU.
H3	PT → BI	PT has a significant positive impact on BI.
H4	RC → BI	RC has a significant negative impact on BI.
H5a	PQ → BI	PQ has a significant positive impact on BI.
H5b	PQ → PEOU	PQ has a significant positive impact on PEOU.
H5c	PQ → RC	PQ has a significant negative impact on RC.
H6a	SI → BI	SI has a significant positive impact on BI.
H6b	SI → PU	SI has a significant positive impact on PU.
H7	PI → PU	PI has a significant positive impact on PU.
H8a	UA → BI	UA has a significant negative impact on BI.
H8b	UA → SI	UA has a significant positive impact on SI.
H8c	UA → PEOU	UA has a significant negative impact on PEOU.
H8d	UA → RC	UA has a significant positive impact on RC.
H8e	UA → PT	UA has a significant negative impact on PT.
H8f	UA → PQ	UA has a significant positive impact on PQ.

4.11 The proposed conceptual model

From the above discussion, from the literature and from the exploratory (qualitative) study, this research proposes a conceptual model to investigate the impact of national culture on OB acceptance in Saudi Arabia (Figure 3.3). The proposed conceptual model consists of nine constructs (Behavioural Intention (BI); Perceived Ease Of Use (PEOU); Perceived Usefulness (PU); Resistance to Change (RC); Perceived Trust (PT); Perceived Quantity

(PQ); Social Influence (SI); Perceived Image (PI) and Uncertainty Avoidance (UA) and three descriptive (exploratory) demographic variables (gender, age and education level).

According to Social Cognitive Theory (SCT) and Ramayah *et al.* (2009), as discussed in the literature, the constructs included in the proposed model can be classified into social (PQ, PI and SI), personal (PT, RC and UA), systemic (PU and PEOU) and demographic variables.

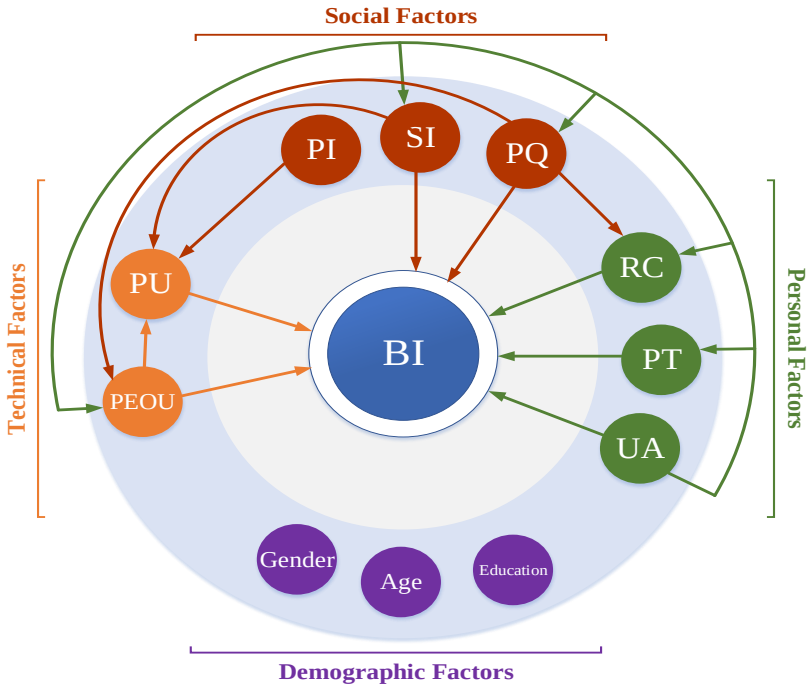


Figure 4.3 The Proposed Model

The constructs discussed above and used in the proposed conceptual model are summarised in Table 5.2 (section 5.7.4: Questionnaire), with their measurement items and sources of reference.

4.12 Summary

This chapter has presented the theoretical framework for the proposed model. After conducting the literature review and the exploratory (qualitative) study, this research proposes a conceptual model to investigate the impact of national culture on OB acceptance in the Saudi context. The proposed conceptual model consists of nine constructs (Behavioural Intention; Perceived Usefulness; Perceived Ease Of Use; Resistance to Change; Perceived Trust; Perceived Quantity; Social Influence; Perceived Image and Uncertainty Avoidance) and three exploratory demographic variables (gender, age and education level). The measurement items for these constructs were validated previously in the literature, and amendments were made as necessary to suit the research objectives. The relationships between these constructs were identified by seventeen hypotheses. This model and its hypotheses are tested in the next stage (Chapter six), after clarifying the research methodology in the next chapter.

Chapter Five Research Methodology

5.1 Introduction

The main purpose of this chapter is to describe the most appropriate research methodology to help achieve the research aims and objectives. The main aim of the research is to investigate existing knowledge, and to extend it for better understanding of the national and cultural role in customers' acceptance and usage of OB in KSA. After investigating the existing knowledge regarding technology adoption, an empirical study (documentary analysis, focus groups and interviews) was designed and conducted in order to construct the most suitable conceptual model to answer the research questions. The conceptual model and its hypotheses were developed to seek better understanding of the cultural impact on OB acceptance. The main data collection method was via a questionnaire, which was distributed to Saudi bank customers to measure several constructs and the relationships that are included in the proposed conceptual model, in order to validate them.

This chapter illustrates the chosen methods from the conducted an empirical study. In addition, it will outline the main data collection method (questionnaire survey) and the statistical analysis methods that were used in the research. The quantitative data collection method that is followed aims to measure the impact of national culture on OB acceptance. The questionnaire is adapted from scales that are validated previously and the survey instruments obtained from the literature, and in order to fit the study context it is amended and translated into Arabic. After finalizing the proposed model and collecting the quantitative data, an analysis stage was conducted using SEM. The chosen method of analysis was the most appropriate to test the proposed relationships between constructs. This chapter illustrates the chosen methodology in this research, and describes it in detail.

5.2 The process of research

Any research with a clear aim needs to follow several basic stages, using the most suitable process to achieve that set of aims (Collis & Hussey, 2009). The research process that was followed in this study used the "hypothetico-deductive method", which comprises seven steps (Sekaran, 2013). The process in this study started by observing the most relevant information, after a review of the literature. Subsequently, the researcher needed to collect preliminary research data, through focus groups and semi-structured interviews, in order to be able to understand the current situation, which would help to design the proposed conceptual model.

Successively, the researcher needed to obtain further information from the literature, with the aim of identifying the chosen factors from the qualitative stage, and how they had been investigated and measured in other situations, as well as confirming that these chosen factors were good predictors of acceptance of OB. Then, the conceptual model could be developed and designed (theory formulation), combining the salient relevant factors that affect people's acceptance of OB. After that, "hypothesizing" was used to draw up relations between the factors that needed to be examined, in order to confirm the validity of the theory formulated. The next step was to collect data through a questionnaire survey, which was based on the first three steps. Before the last step, data analysis needed to be performed, to test the proposed model and its hypotheses. The last step was deduction, which would interpret the meaning of the results of the data analysis in order to draw up research conclusions.

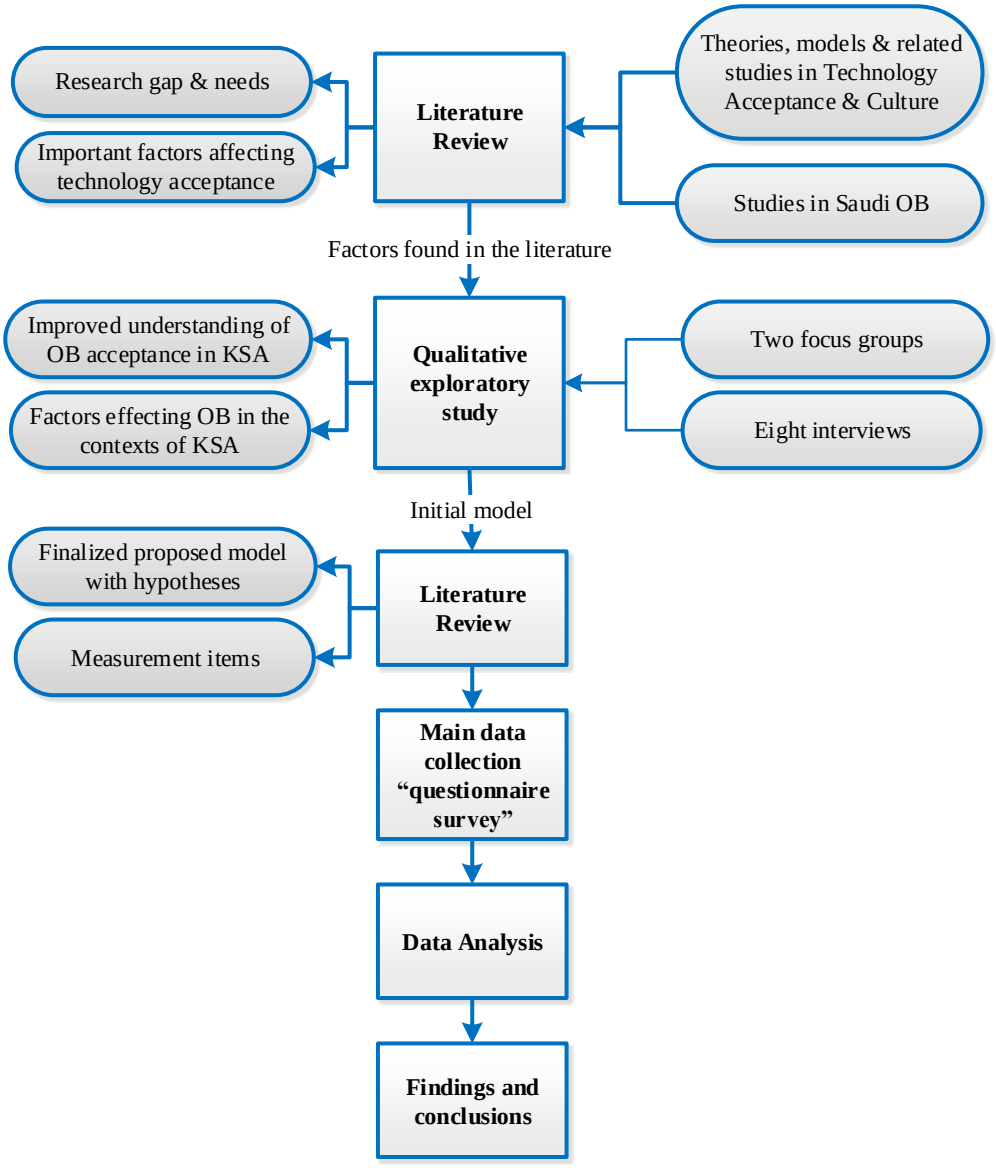


Figure 5.1 The research process

5.3 Research philosophy and approach

Research philosophy can be seen as a framework, described by Guba and Lincoln (1994), as the start point of a belief system that can direct researchers towards their aims. In their research journey, researchers follow rules and standards that are contained in research methodologies (Bryman & Bell, 2011). Each of these research methodologies has a specific paradigm. According to Guba and Lincoln (1994), research paradigms offer rules

and standards, with limitations that guide researchers in their work. Selecting a specific research methodology is influenced by several factors, namely the researcher's philosophical view, as well as other factors, such as the nature of the investigated phenomenon, the research questions, the population size of the study and its audience, and these are the main determinants when choosing a research methodology (Yin, 2009; Collis & Hussey, 2009; Bryman & Bell, 2011).

A research paradigm can have different meanings in academic research (Collis & Hussey, 2009). Morgan (1979; cited in Collis & Hussey, 2009: p. 47) shows that the word paradigm can be used, in academic research, at three levels: the philosophical, social and technical levels. At the philosophical level it reflects basic beliefs about the world, and at the social level it provides guidance for researchers on how to carry out the work, while at the technical level it is used to describe the methods and techniques that are used to conduct the research. Mkansi and Acheampong (2012) investigated the key authors writing about research methodology such as Srivastava and Rego (2011), Saunders, Saunders, Lewis and Thornhill (2012), Kothari (2007) and others found different terminologies that are in conflict. Researchers may find it problematic deciding which one to use. According to Collis and Hussey (2009), the main two research paradigms or philosophies are positivist and phenomenological. Other terms are used by different authors, such as quantitative, objectivist, scientific, experimentalist and traditionalist, as a substitute for the term positivistic paradigm, and the terms qualitative, subjectivist, humanistic and interpretivist are used by some authors instead of phenomenological.

Choosing between the two main paradigms (positivistic or phenomenological) is guided by several assumptions (Figure 4.2). These assumptions are ontological, epistemological, axiological, rhetorical and methodological (Creswell, 2013). For example, the ontological assumption refers to the nature of the world and what exists, and concentrates on the wanted realities (Scott, 2002). With the ontological assumption, researchers need to decide whether they are looking at the world as objective and external to them or socially constructed and cannot be examined without human perceptions (Creswell, 2013). On the other hand, the epistemological assumption deals with knowledge, and what kind of knowledge might be acceptable and valid (Sekaran, 2013). According to the positivist belief, only phenomena that can be observed and measured can be considered as valid knowledge, while the phenomenologist viewpoint tries to maintain the distance between researchers and their object of research (Creswell, 2013). Quantitative or positivistic research shapes researchers' beliefs, while in qualitative or phenomenological study, researchers decide what should be considered as facts (Smith, 1983, cited in Collis & Hussey, 2009: p. 48).

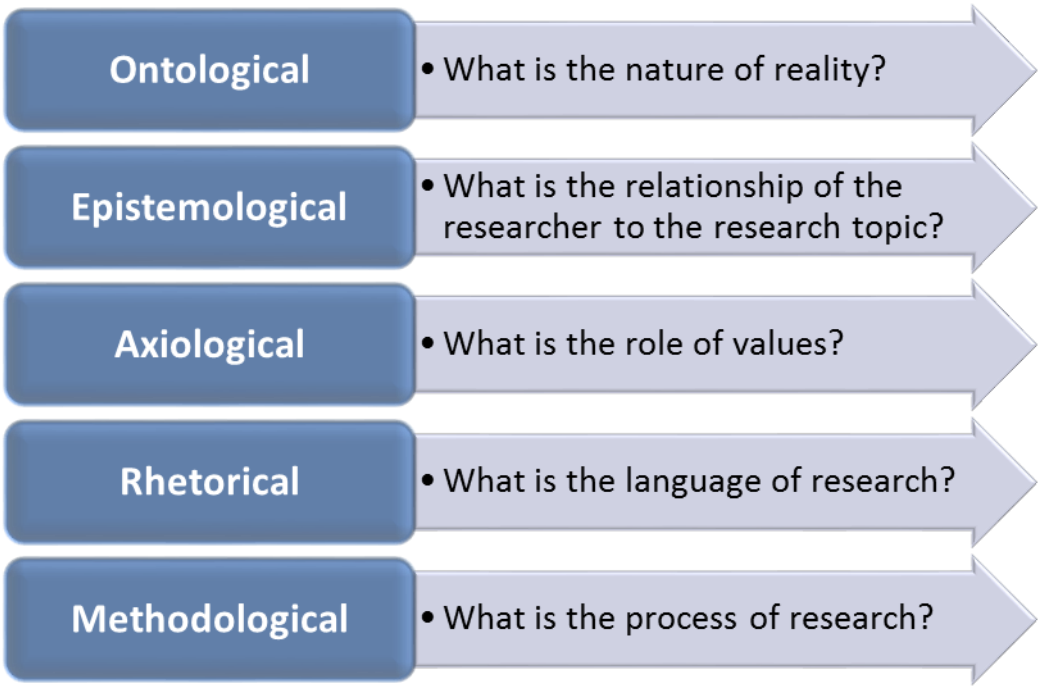


Figure 5.2 Summary of assumptions

One of the researchers' main goals in this study is to maintain a distance from the interviewees and survey participants, in order to be more objective. To make sure that researcher bias was excluded, the researcher aimed to feign disinterest and not involve his feelings or be too be familiar with the research topics. According to Guba and Lincoln (1994), when researchers follows these strategies at every stage of the research, they are able to make time- and context-free generalisations. On the other hand, it has been argued that intentions and behaviours should be understood and investigated in relation to the subjective understandings of people experiences and actions, which make it difficult to separate the researcher from the investigated social behaviour (Bryman & Bell, 2011). Therefore, using qualitative data improves the initial understanding of the investigated social phenomena, and finally adds to knowledge. The researcher investigated the two paradigms / approaches (the positivist and phenomenological) in order to select the most appropriate to follow. The positivist approach is considered to be scientific, and of a more quantitative nature, while the interpretivist approach is considered to be more qualitative. Each philosophical approach has advantages and disadvantages, with clear impacts in different contexts (Creswell, 2013). Both approaches and other types of research will be discussed in detail, in the next sub-sections, leading to a conclusion about the most appropriate method to explain how the research is to be conducted.

5.3.1 The positivist approach

One of the main approaches or paradigms in research is the positivistic paradigm, which is alternatively termed quantitative, objectivist, scientific, experimentalist or traditionalist by some authors (Tashakkori & Teddlie, 1998; Scott, 2002; Tashakkori & Teddlie 2010;

Collis & Hussey, 2009; Sekaran, 2013). This paradigm leans towards observing reality as an object which can be measured and explored by an unbiased researcher (Tashakkori & Teddlie 2010; Sekaran, 2013). The term positivism is one of the oldest terms used to describe the paradigm, which is still currently in use (Tashakkori & Teddlie, 2010). It follows a scientific method to provide quantitative data, showing the causes of the studied phenomena (Collis & Hussey, 2009). As positivism is associated with quantitative methods it is commonly known as quantitative, and its supporters are called QUAN's (Tashakkori & Teddlie, 1998).

According to Johnson and Onwuegbuzie (2004), QUANs believe that researchers need to investigate the social phenomena in a way that is similar to the one used by physical scientists investigating physical phenomena. They need to keep a distance from the studied objects and the study participants in order to be more objective. Thus, by being emotionally uninvolved and keeping their biases to one side, quantitative researchers are able to make generalisations (Guba & Lincoln, 1994; Tashakkori & Teddlie, 1998). Quantitative research follows a deductive approach, with a proposed hypothesis to be tested and confirmed or rejected after data collection. Researchers following the positivist approach normally apply several research methods, such as descriptive and analytical surveys, cross-sectional studies, experimental studies and longitudinal studies (Collis & Hussey, 2009). The other main approach, interpretivist, is discussed in the next section

5.3.2 The interpretivist approach

The positivist approach and the quantitative point of view are the subject of serious debate among social scientists. In general, the interpretivists, also known as QUALs, qualitative

purists and constructivists, reject the positivistic point of view. They believe in the advantage of relativism, idealism, constructivism, hermeneutics, postmodernism and humanism (Guba & Lincoln, 1994; Tashakkori & Teddlie 2010; Collis & Hussey, 2009). QUALs do not see the world as an objective reality, but they believe that actions need to be studied depending on subjective understandings of people behaviour and experience (Bryman & Bell, 2011). Moreover, they argue that the interrelationship between researcher and the subject that they are studying cannot be separated, and researchers in social science will investigate what they believe exists, and needs to be investigated (Smith, 1983; cited in Collis & Hussey, 2009). QUALs argue the significance of using qualitative data to improve initial understanding and finally add to knowledge (Kaplan & Duchon, 1988). Accordingly and to allow researchers to investigate cultural and social phenomena, the methods of qualitative research were developed in the social sciences. Regarding the style of writing, QUALs follow the active style of writing, and prefer detailed and rich explanation with direct and informal writing. According to Tashakkori & Teddlie (2010), qualitative research adopts the inductive approach, whereby data is collected, compared, and then examined, perhaps leading to a new definition of the world. Another view on research, the mixed methodology approach, is presented in the next sub-section.

5.3.3 The mixed methodology approach

Although several key authors in methodology insist that researchers need to follow only a single method of research (Datta, 1994; Guba & Lincoln, 1994; Myers, 1997; Denzin & Lincoln, 2012), other authors (Brewer & Hunter, 1989; Patton, 1990; Tashakkori & Teddlie, 1998; 2010) advocate the benefit of mixing these methodologies to obtain the greatest benefit and more valid and reliable results. Different researchers use different words to identify the same concept. One of these is “Mixed Methods”, which uses both

qualitative and quantitative methods. Mixed methods are variously called multi-strategy, multi-methods, mixed methodology or methodological mixes (Brannen, 1992; Datta, 1994; Myers, 1997, Creswell, 2013; Tashakkori & Teddlie, 2010). However, this research favours mixed methods, as it is the most common term used in the literature, and is quite apt for the purpose of this research.

Mixed method research is a combination of qualitative and quantitative methods (Denzin & Lincoln, 2012). This mixture gives the researcher the opportunity to control the researched phenomena, by investigating its interrelations, besides making clarifications (Stake, 1995). The mixed method is an approach worth considering, because of its new and unique view of the world, as a result of its methods of collection (Al-Shafi & Weerakkody, 2007). These techniques are collectively known as triangulation (Greene, Caracelli & Graham, 1989). Triangulation is known as seeking the convergence and corroboration of results collected by the different methods and designs used for studying the same phenomenon (Johnson & Onwuegbuzie, 2004; Johnson, Onwuegbuzie & Turner, 2007). This research can be seen as a mixed methodology research, as it has a combination of the qualitative approach (the second stage of the research including focus groups and interviews) and the quantitative approach (the fourth stage – conducting a questionnaire survey.

5.4 Inductive versus deductive research

Any research can be classified as being inductive or deductive, according to its logic (Collis & Hussey, 2009; Easterby-Smith, Thorpe & Jackson, 2012; Tashakkori & Teddlie, 2010). It has been said that, to establish what is true or false and to be able to draw a

conclusion, researchers need to follow one of two basic ways of logical reasoning, namely inductive and deductive processes (Tashakkori & Teddlie, 2010). These two ways will be discussed in the next two sub-sections.

5.4.1 Deductive reasoning

Tashakkori & Teddlie (2010) suggest that deductive reasoning is construed as the process of drawing conclusions through logical reasoning. According to Anderson (2009), the term deductive reasoning includes creating a proposition that is known to be true and trialling it out in other contexts. For example, a specific theory could originate via something that is perceived to be accurate, and subsequently trialled using an empirical process, in an assortment of situations, conditions and contexts. Concurrently, by this process of trialling, the original idea may be initially confirmed, changed or disregarded as a valid theory. Anderson (2009, p. 101) suggests that the idea of deductive reasoning could be summarised as follows:

- It operates within the constraints of scientific principles;
- It recognises variables and lays the groundwork for their clear definition;
- It fosters a structured and duplicable method;
- It allows the collection of quantitative data;
- It provides a level of independence in terms of the subjects that are being researched;
- The sample size that it uses is great enough to allow the assumption of generalized findings.

5.4.2 Inductive Reasoning

Tashakkori & Teddlie (2010) suggest that findings can be brought forward via empirical observations. Furthermore, this procedure develops an assumption view point similar to conclusions. According to Anderson (2009), inductive reasoning can make some generalized assumptions about the nature of the subject matter following observations process of either behaviour or factual evidence, over a period of time. This type of procedure may also be referred to as a "clean sheet" process. Anderson (2009, p. 103) also suggests that inductive reasoning may be perceived as the following:

- Investigation of meaning and potential perceptions;
- Contextual assumption of data taken into consideration;
- Development in an incremental way during the research process;
- Qualitative data collection;
- Acceptance regarding the researcher's involvement during the process of investigation, and
- The acceptance of "rich" data that may be less generalized.

Several differences occur, namely inductive reasoning links with what is acquired through observations. This allows researchers to pick up any theories or hypotheses. On the other hand, deduction or logical types of reasoning provide researchers with the option to either accept or reject a hypothesis. Acceptance or rejection thereby assists researchers in explaining further, or making predictions (Tashakkori & Teddlie, 2010).

By understanding the main aim of this research, and from the discussion above, it can be said that the logic of this research is a mix of deductive and inductive analysis. It is

deductive in the sense that theoretical and conceptual structures were established by previous work and tested empirically in this research. Although the quantitative phase is deductive, this research can be seen as an inductive approach, as the main ideas in the conceptual model are developed using a qualitative approach. In sum, inductive reasoning and way of thinking are used to generate new ideas, which are subsequently tested deductively (Easterby-Smith *et al.*, 2012).

5.5 The adopted research methods

This research aims to investigate the factors that influence customers' acceptance of OB in the KSA, as well as identifying how those factors interact. After investigating several theories, models and previous work in the field of technology adoption, and after conducting the exploratory empirical study, a conceptual model of national cultural impact on OB acceptance was designed. With the aim of designing, testing and validating the hypotheses in the proposed model, a mixed methods research approach was adopted, as it was judged to be the most reliable approach to answer the research questions. In order to answer the research questions, the researcher believes that the study of these phenomena requires several points of view to be considered, and that can be done by following a mixed methods approach. This research adopts the triangulation method, which comprises several types of data collection method, including qualitative and quantitative techniques.

5.6 Design of the study

A research design provides researchers with detailed plans, as guidance during the research journey. It reminds them at each stage about the research questions to be investigated and

the answers to be obtained (Creswell, Clark, Gutmann & Hanson, 2003). According to Cooper and Schindler (2013), the research journey consists of three main stages: an exploration of the situation, collection of data and analysis and interpretation of results. The authors argue that the main types of research are of an exploratory, descriptive, causal or explanatory design. The present research uses all these designs along the journey (Figure 4.3). Exploratory research was applied in the first stage, for investigation, and to acquire basic information as regards the research questions and the problem (see the Literature Review). Following this, a qualitative study (focus group and in-depth interviews) was designed and conducted, to identify relevant constructs and to help design the proposed model and hypotheses. This proposed model makes the research problem clear, through explaining its constructs, and the impact of national culture on the acceptance and usage of OB in KSA. Therefore, the first stage consists of reviewing the literature, conducting a focus group and in-depth interviews.

Qualitative and quantitative data collection methods were used to find the appropriate data. However, the main data collection method was quantitative, which was accomplished in the second and third steps of the research. In the second stage, the research was descriptive, to be able to characterise the respondents and to describe the frequencies, percentages, means and other statistical data for the factors used. The final stage was explanatory, to explain the connection and associations among the constructs that were included in the proposed model. This research can be classified as cross-sectional, since the data was collected in a single time period in order to answer the research questions and to achieve its objectives (Sekaran, 2013).

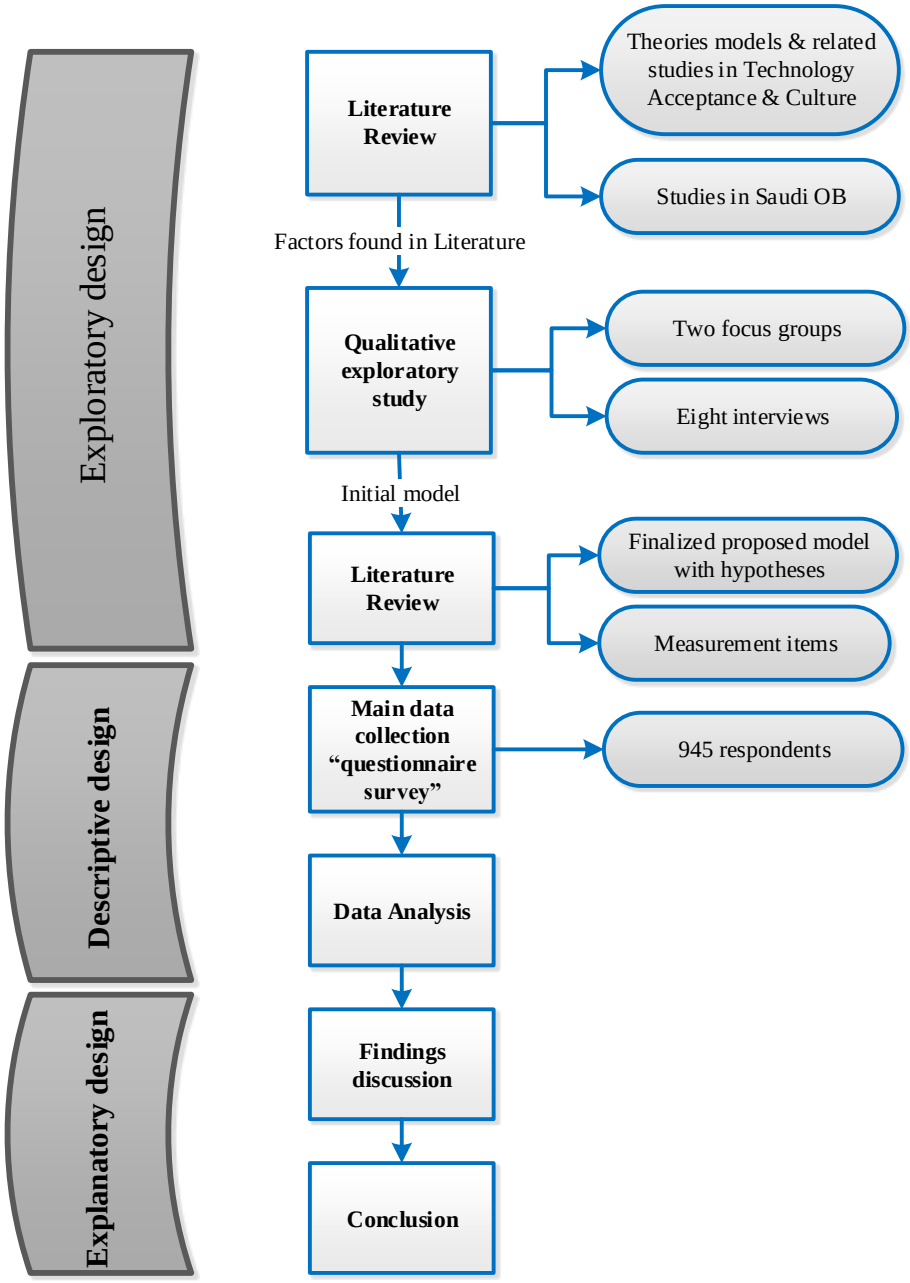


Figure 5.3 Research Design

5.7 Data Collection Methods and Procedure

The methods used to obtain important information in an exploratory study are paramount to the success of a research project. Collis and Hussey (2009, p. 152) define data as "*known facts or things used as a basis for inference or reckoning*". Data can be obtained in

different ways and from different sources. Collecting the primary data may comprise several methods, such as interviews (structured, semi-structured or unstructured), documentation, observations and surveys (Johnson & Onwuegbuzie, 2004; Saunders *et al.*, 2012). The purpose of using a multi-collection method is to ensure that bias is reduced, and the data accurately make enhancements in terms of the findings, and also give a far greater level of accuracy regarding content, in order to make conclusions during analysis of the data (Yin, 2009; Bryman & Bell, 2011). The tools used for collection of data in this thesis are (a) documentary analysis, (b) interviews, (c) focus groups and (d) questionnaires. Using surveys in the form of questionnaires is the primary tool of data collection for conclusions in the research process. These are discussed in further detail in the next section.

As per the previous discussion, the primary purpose and use of triangulation is arguably to ensure that the research methodology is strengthened. In addition to this, it allows the use of data collection methods to examine one type of phenomenon from a variety of views, as opposed to just one angle (Kaplan & Duchon, 1988; Johnson & Onwuegbuzie, 2004). This thesis has followed the triangulation strategy for data collection, where several sources of evidence are used: focus groups, interviews, documentary analysis and the questionnaire survey. All methods were used in this study to help draw an accurate picture of the context of national cultural impact on OB acceptance, with the exception of the questionnaire, which was used as the main data collection method to draw the final conclusions.

5.7.1 Documentary analysis

Examining the relevant documents is recognised as a significant part of data collection (Saunders *et al.*, 2012; Bryman & Bell, 2011). In order to comprehend the role of culture as regards OB acceptance in KSA, the review of official reports and the literature from a relevant organisation in the KSA was examined, prior to investigation by the researcher. This was paramount in ensuring that the research obtained accurate views concerning the subject matter. The objective of the review was to effectively assess any potential research gaps and objectives. While documentary analysis does not enable an overall overview of the present situation, it presents, to a certain extent, the major positive benefits and current issues the banks and other relevant organisations face, regarding acceptance of OB. Additionally, the researcher visited some specific, relevant organisations, in order to investigate and analyse available documents that could help in understanding Saudi OB acceptance. The researcher had the fortunate opportunity to access the following:

- Documents concerning previous history in relation to the topic of OB from several banks.
- Statistical and general information regarding the financial sector in the KSA via the Saudi Monetary Agency.
- Specific documents regarding OB in KSA from the Saudi Central Bank.
- Informational documents regarding the Internet in the Ministry of Information and Communication Technology, the Communications and Information Technology Commission (CITC), from King Abdul Aziz City for Science & Technology (KACST) and the Internet Services Unit (ISU).

After several visits between June 2010 and March 2011 to the organisations listed above, the researcher had the opportunity to retrieve reports regarding the Internet and online banking in Saudi Arabia. Some of these reports are reviewed in the literature chapter. The general finding from these reports and documents increased the awareness of the researcher about the huge efforts that have been made by government, banks and Internet organisations to improve the e-commerce market in Saudi Arabia. Every bank visited had a separate department managing and improving online services. SAMA reports show how the financial e-services improved year on year. However, the reports show slow movement from retailers as far as adopting electronic financial channels is concerned. The majority reported online access. Banks provided only the published reports and were unwilling to share important information. Although the review of the documents did not provide as much information as was expected, it opened the researcher's mind and increased his awareness regarding OB in Saudi Arabia. Documentary analysis helped the researcher to improve and design the other data collection methods that were used in the research (focus groups, interviews and questionnaire survey).

5.7.2 Focus groups

A focus group is a type of qualitative research methodology, in which the researcher (named the interviewer, leader or moderator) encourages participants to discuss a specific topic or issue (Collis & Hussey, 2009). In conducting focus group discussion, group members are encouraged to communicate with each other rather than the researcher asking questions. The main function of the researcher in a focus group is to generate ideas, by making the group members exchange experiences or points of view (Bryman & Bell, 2011). Focus groups have been widely used in market research and academic work. Denzin and Lincoln (2012, p. 45) state that "*in the marketing context, focus groups are*

used to extract information from people on a given topic". They argue that they are one of the best methods to improve researcher understanding of an investigated issue. According to Tashakkori and Teddlie (2010), in mixed methodology research, the focus group, as a qualitative method, is used to improve understanding of the research topic, draw a clear strategy for the following quantitative stage, and help design the questionnaires.

This research held two focus groups, summarised in table 4.1, with postgraduate and undergraduate Saudi students, in order to improve understanding of OB acceptance in KSA, from the perception of representative customers, and to choose the most important factors influencing Saudis to adopt OB, as well as to investigate the relationships between those factors from the viewpoint of representative Saudi students. This method was based on the method followed by several authors who developed and extended technology models by conducting focus groups (Dahlberg, Mallat, & Öörni, 2003; Pikkarainen *et al.*, 2004; Hill *et al.*, 2005; Sohail & Shaikh (2008). Full details of the two focus groups were presented in the third chapter "The Empirical Study".

Table 5-1 Summary of focus groups 1 & 2.

Focus Group 1	8 participants (students)	4- Undergraduates	2 - Males
			2 - Females
		4- Postgraduates	3 - Males
			1 - Female
	Duration time	2 hours and 30 minutes (including 20 minutes break)	
	Main findings	12 factors were identified as important to determine OB acceptance.	

<table>
<tr><td></td><td></td><td colspan="2">A new factor was suggested (Perceived Quantity).</td></tr>
<tr><td colspan="4">Findings of F.G 1 validated and improved in the interviews.</td></tr>
<tr><td colspan="4">From literature, F.G. 1 & interviews, initial model was built and assessed in F.G 2.</td></tr>
<tr><td rowspan="4">Focus Group 2</td><td rowspan="2">6 participants (students)</td><td colspan="2">2- Undergraduates (both males)</td></tr>
<tr><td rowspan="2">4- Postgraduates</td><td>2 - Males</td></tr>
<tr><td>2 - Female</td></tr>
<tr><td>Duration time</td><td colspan="2">2 hours (including 15 minutes break)</td></tr>
<tr><td rowspan="2">Main findings</td><td colspan="2">Confirm the initial model with its 8 proposed paths</td></tr>
<tr><td colspan="2">Suggest 9 new paths for the new constructs (PQ & UA).</td></tr>
</table>

5.7.3 Interviews

The main aim of the qualitative part of this study is to explore the status of OB in the KSA. Therefore, in-depth interviews were conducted to understand the role of national culture in OB acceptance. According to Denzin & Lincoln (2012), interviews can be regarded as a key data collection process in qualitative research. There are two sorts of interviews: the first is known as "*the survey research interview*", which is a commonly used type of process that is completed with fixed response topics borne in mind, and uses a methodical assessment of results. This method also involves a loading process in correlation with statistical methods and quantitative sets. The other is called "*unstructured interview*" which, according to Ghauri and Grønhaug (2005), allows participants or interviewees to deliberate on answers, opinions and activities on a specific issue with an amount of freedom. This type of interview process involves the interviewer simply leading the questions and recording any responses given (Bryman & Bell, 2011).

An important consideration is that semi-structured interviews *do* indeed differ from their structured and unstructured counterparts. Semi-structured interviews differ in procedure, in that they limit the level of bias, and effectively minimise it. Semi-structured interviews need to be handled carefully during the design process, in order to minimise the level of bias (Bryman & Bell, 2011). The researcher conducted eight semi-structured interviews in order to better understand how Saudis identify the important factors that impact on their decisions as to whether or not to adopt OB. Full details of the eight interviews were presented in the third chapter "The Empirical Study".

After comparison of the interviews' audio records and notes with the focus group material and the relevant literature, the researcher was sufficiently satisfied with the reliability of the findings. The research found that the most salient factors impacting the acceptance of OB in KSA are eight factors, namely Resistance to Change; Perceived Trust; Perceived Image; Social Influence; Perceived Ease Of Use; Perceived Usefulness; Perceived Quantity and Uncertainty Avoidance. To arrive at the research conclusions by interpreting the results of the analysed data, the researcher needed to develop a suitable questionnaire to collect the research data. The next sub-section will discuss the questionnaire and its design.

5.7.4 Questionnaire

This sub-section looks at the questionnaire survey, which is used the main method of data collection in a quantitative approach. It also discusses how the questionnaire was developed, piloted and translated from English into Arabic.

5.7.4.1 Developing the questionnaire

After accomplishment of the first stage and after the design of the proposed model, a cross-sectional questionnaire survey was used to collect the primary data. The questionnaire was the main data collection method, and was distributed among Saudi bank customers in order to test the constructs chosen to be included in the proposed conceptual model, in order to validate it. The questionnaire was adopted from survey instruments scales that is validated previously in literature (Table 4-4), and amended and translated into Arabic to fit the study context, as will be explained in detail in the next two sub-sections.

Table 5-2 Measurement items of constructs with their sources of reference.

Constructs		Items	Items resources
Behavioural intention (BI)	1	I would use online banking for my banking needs.	Venkatesh & Davis (2000); Srite & Karahanna (2006)
	2	I will use online banking on a regular basis in the future.	
	3	Using the online banking for handling my banking transactions is something I would do.	
	4	I expect my use of online banking for handling my financial transactions to continue in the future.	
	5	I will strongly recommend others to use online banking.	
Perceived usefulness (PU)	1	Online banking enables me to accomplish banking activities more quickly.	Venkatesh & Davis (2000); Srite & Karahanna (2006)
	2	Online banking enables me to accomplish banking activities more easily	
	3	Online banking enables me to improve performance in utilising banking services.	
	4	Online banking enables me to accomplish more banking activities.	
	5	Online banking gives me greater control over financial banking activities.	
Perceived ease of use (PEOU)	1	Interaction with online banking site is clear.	Venkatesh & Davis (2000); Srite & Karahanna (2006)
	2	It is easy to do what I want to do using online banking.	
	3	Learning to use online banking is easy.	
	4	I expect to become or I am already skilled at using online banking.	
	5	Overall, I expect online banking will be easy for me to use.	
Social influence (SI)	1	I would consider using online banking if someone personally recommended it.	Mathieson (1991), Taylor & Todd (1995); Wu and Chen, (2005)
	2	When trying new technology, I trust my own instinct more than advice from others.	
	3	People who influence me would think that I should use online banking.	
	4	People whose opinions I valued would prefer that I should use online banking.	
	5	Most people who are important to me think that I should use or continue to use online banking.	
Resistance to change (RC)	1	I am interested in hearing about new technological developments	Kim & Kankanhalli (2009)
	2	Technological developments have enhanced our lives	
	3	I feel comfortable in changing and using online banking services for my financial activities	
	4	I agree with the change to online banking.	
	5	I cooperate with the bank to change to online banking.	

Perceived Trust (PT	1	The online banking sites are trustworthy	Suh & Han (2002); Al-Somali, Gholami, & Clegg (2009)
	2	I trust in the benefits of the decisions of the online banking site	
	3	The online banking site keeps its promises and commitments	
	4	The online banking site keeps customers' best interest in mind	
	5	I trust my bank's online banking site	
Perceived Quantity (PQ)	1	Most people in my group use online banking frequently.	Hsu and Lu (2004), Van Slyke, Ilie, Lou & Stafford (2007)
	2	Most people in my family use online banking frequently.	
	3	Most people in my community use online banking frequently.	
	4	Most people in my class/office use online banking frequently.	
	5	Most people I communicate with use online banking frequently	
Perceived Image (PI)	1	People who use new technology (such as online banking) have higher capability than those who do not.	Moore & Benbasat (1991), Yang, Moon and Rowley (2009)
	2	Using online banking is an indicator of advanced level in Management Information Systems.	
	3	Because of my use of new technology (such as online banking), others see me as a more valuable person than those others.	
	4	People who use new technology (such as online banking) are more desirable, in the work environment than those who do not.	
	5	People who use new technology (such as online banking) have more prestige, in the work environment, than those who do not.	
Uncertainty avoidance (UA)	1	Online banking websites' rules and regulations are important because they inform users about what the bank expects of them	Srite & Karahanna, 2006
	2	It is important to have online banking instructions spelled out in detail, so that people always know what they are expected to do	
	3	It is better to have a bad experience that you know about, than to have an uncertain experience which might be better.	
	4	Providing opportunities to be innovative is more important than requiring standardized use procedures	
	5	People should avoid making changes because things could get worse.	

The researcher was justified in distributing the survey questionnaire through electronic channels (e.g., Facebook, Twitter, WhatsApp and email) to reach a wide range of Saudis around the world (sub-section 4.8.2). The questionnaire survey was therefore designed to be suitable for the majority of electronic devices, and to make it easier for respondents to participate through their smartphones.

The questionnaire survey was designed in order to make the instructions clear for participants, so that their responses could be given more easily. The cover letter for the survey had sufficient detail concerning the aims of the research and the purpose of the survey. The respondents were advised to choose an honest and direct answer that would

reflect their beliefs. The researcher assured the privacy and confidentiality of the respondents' answers, and recommended not to mention names.

The survey had two sections: one concerned the respondents' background and demographic details, and the other concerned their beliefs regarding the nine chosen constructs. There were forty-five questions on the questionnaire (see Appendices).The results for the constructs were measured on the Likert scale, which has five categories, ranging from 1 (strongly disagree) to 5 (strongly agree). Although the survey questionnaire was adopted from previously validated scales from contexts similar to the research context, necessary piloting and modification needed to be done to fit the context of the study, as discussed in the next sub-section.

5.7.4.2 Pilot study 1

The literature provided ideas for material for the questionnaire survey. Existing measurement scales were adapted and amended to suit the current research context and the pilot study. According to Saunders *et al.* (2012) and Bryman and Bell (2011), the main aims of a pilot study are to develop questions and to check respondents' understanding and clarity before the researcher embarks on the survey proper. The purpose of this pilot study was to identify any errors in the questions to avoid any misunderstandings and confusions.

Four PhD students (two academics and two practitioners) were asked to pilot the questionnaire survey. The researcher benefited by receiving valuable comments and suggestions to improve the questionnaire, which required removing and modifying some questions to better suit the research context, and to be more understandable for the respondents. This phase was completed by the revision and modification of the instrument,

where necessary (see Appendices for the final version of the survey). The next sub-section discusses the translation of the survey.

5.7.4.3 Translation of the questionnaire

As the questionnaire survey was adopted from previously validated scales and survey instruments in the English language literature, it was amended, developed and translated into Arabic language, which was the mother tongue of the targeted populations. According to Bryman and Bell (2011), the targeted population needs to be contacted in a language that is easy for them to understand, in order to obtain satisfactory results and subsequently good findings. The questionnaire was in Arabic language, to make data collection more effective. The researcher was well aware of the impact of inaccurate translation, which could lead to misinterpretations and misunderstandings (Saunders *et al.*, 2012). Therefore, accuracy, fluency and ease of comprehension were taken into consideration in translating the questionnaire.

According to Bryman and Bell (2011), to ensure validity and to eliminate any distortion of the data, translation needs to be done in two stages. In the first stage, the English version of the questionnaire was translated into Arabic. The second stage was back-translated from Arabic into English. The first stage was done by the researcher and checked by two PhD researchers, while the second stage was done by an expert in translation (an official interpreter). Moreover, the Arabic and English surveys were sent to three professors in a Saudi University to be checked and compared. After these steps, the researcher was reassured about the accuracy of the translation (Saunders *et al.*, 2012; Bryman & Bell, 2011) (see Appendix for the Arabic version of the survey).

5.7.4.4 Pilot Study 2

Before distribution of the final questionnaire, a trial survey was conducted (pilot study no. 2). According to Churchill (1979), to ensure the content validity of a questionnaire, a pilot study needs to be conducted before the actual distribution of the survey proper. The second pilot study was carried out as a trial, before actual data collection, to determine any in-built bias, sampling errors or other issues that needed to be considered. After final questionnaire development, the pilot study was conducted with a small number of Saudis that could be deemed representative of the whole study population.

As this study used an online survey method, the link for the survey was distributed electronically through the WhatsApp channel, just to restrict distribution before the actual survey. 68 respondents completed the survey. After revision and monitoring the completed surveys, 63 responses were used. In the covering letter, the respondents were asked to provide any suggestions to improve the questionnaire and were asked not to participate in the actual survey if they were to receive it through any other distribution channel. Furthermore, the researcher eliminated any response that came from the same IP number, to prevent anyone participating in the pilot from doing so again.

The data collected was coded and analysed using SPSS 20.0. The main result the researcher was looking for was reliability of the constructs, which was above 0.7 on Cronbach's *Alpha* for all constructs except UA, which was 0.67. UA reliability was acceptable as it is consistent with the majority of the literature, which found UA reliability low. These four steps were completed by revising and modifying the main research

instrument, making it ready for actual distribution. (See Appendix for the final version of the survey). The next section discusses research sampling issues.

5.8 Sampling strategy

To be able to address the research question, researchers and investigators need to collect and analyse appropriate information. Defining the population and the sampling strategy for the research is an essential step in collecting relevant data.

5.8.1 Population

This research mainly used a quantitative method to collect data and to investigate and assess the proposed model and its hypotheses. Before collecting the data, the population of the study needed to be defined. According to Cooper and Schindler (2013), defining the unit of observation is important from the early stages, and it can be defined from the objectives. They look at the population of a study as the distinguishable set of elements of interest to the researchers and their objectives. Accordingly, the population was any Saudi who had a bank account. It is not possible for researchers to reach the whole targeted population. For that reason, a representative sample should be drawn from the targeted population (Kemper, Stringfield & Teddlie, 2010). The main aim of any researcher in the collecting data stage is to reach the right respondents, who can represent their respective study populations (Tashakkori & Teddlie, 1998).

According to Lazar *et al.* (2010), researchers can choose between paper-based or online surveys, as each has its own characteristics, advantages and disadvantages. The key point

in choosing between the two methods is how researchers can best reach their target population (Lazar *et al.*, 2010). The researcher is a personal believer in the efficacy of online surveys, as several channels are available, such as Facebook, Twitter, email and WhatsApp.

5.8.2 Sampling frame

It is known that it is not possible for researchers or groups doing qualitative or quantitative work to reach all individuals in the target population (Tashakkori & Teddlie, 1998; Mkansi & Acheampong, 2012). They have to follow a specific type of sampling, which can be defined as the process of selecting a sufficient number of participants to represent the whole of the targeted population (Kemper *et al.*, 2010).

According to Google's Our Mobile Planet report (2013), KSA is one of the highest adopters of smartphone technology (second place in the world rankings). From that report, three out of every four Saudi mobile phone users have smartphones. Furthermore, the report shows a significant increase (21 percent) in the adoption of smartphones between 2012 and 2013 (Figure 4.7). This information presents the opportunity to easily reach the target population through the Internet in general and specifically through their smartphones. Accordingly, and as the targeted population covers the globe, it is justified to distribute the survey questionnaire through electronic channels (e.g., Facebook, Twitter, WhatsApp and email). When it is not practicable for researchers to reach the whole of the population, they can normally conduct random or non-random sampling (Teddlie & Yu, 2007; Hair, Black, Babin & Anderson, 2010; Gay, Mills & Airasian, 2012).

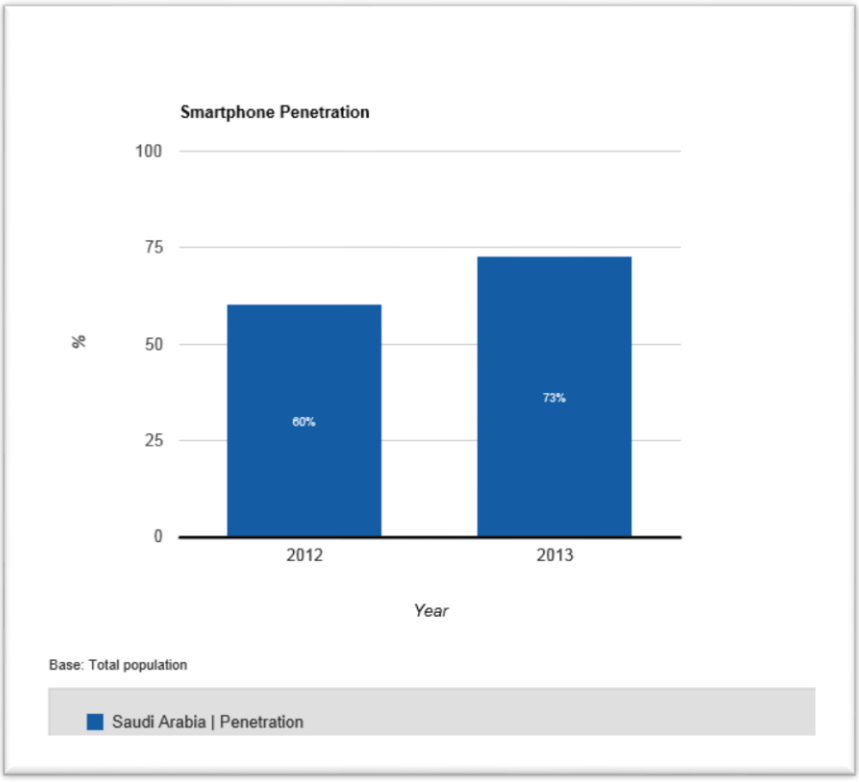


Figure 5.4 Smartphone users in KSA

5.8.3 Sampling methods

As described above, sampling is the process of selecting representative individuals to reflect what is needed to be measured from the larger population or to obtain information about that population using the selected sample (Hair *et al.*, 2010). According to Gay *et al.* (2012), it is not supposable to investigate the whole population because of several restrictions or impediments (e.g., limited time, money and access, besides the huge effort required). The findings can therefore be more generalizable, and more representative of the sample population.

There are two types of sampling and selection procedures: probability sampling and purposive / non-probability sampling procedures. As previously illustrated, there is no agreement among key authors on some of the key terms in methodology, their definitions and classifications. This applies to sampling procedures, types and classifications (Miles & Huberman, 1994; Tashakkori & Teddlie, 1998; Miller & Salkind, 2002; Tashakkori & Teddlie, 2010; Teddlie & Yu, 2007; De Vaus, 2013). Teddlie and Yu (2007) classify sampling and selection procedures into four groups: Probability; Purposive; Convenience and Mixed Methods Sampling, while Tashakkori and Teddlie (1998) classify sampling and selection procedures into two groups: probability and purposive / non-probability sampling procedures. Each of these types has several strategies that are used in research. Probability sampling includes several strategies, such as simple random; systematic random; stratified random (proportional or non-proportional); cluster random; and multistage cluster sampling. Non-probability sampling includes several strategies, such as purposive; sampling for homogeneity; sampling for heterogeneity; stratified non-random; snowball or chain; sequential; and convenience sampling (Tashakkori & Teddlie, 1998).

Although some research uses one specific sampling strategy alone for each study, in the social and behavioural sciences, using a combination of sampling techniques is the most appropriate. Therefore, researchers should combine sampling techniques, to gain a more complex sample. However, as the size of the targeted population cannot be determined, probability sampling cannot be calculated and cannot be used in this research (Hair *et al.*, 2010). Therefore, this research had another sampling method option, namely non-probability sampling. According to McDaniel and Gates (2013), non-probability sampling helps researchers to select elements from a targeted population based on convenience, as it is not expensive to attain.

The main types of non-probability sampling are: convenience sampling, judgment sampling, quota sampling and snowball sampling (Dillon, Madden & Firtle, 1993). Tashakkori and Teddlie (1998), however, classify non-probability sampling into several strategies, namely purposive; sampling for homogeneity; sampling for heterogeneity; stratified non-random; snowball or chain; sequential; and convenience sampling. Non-probability convenience sampling is adopted in this research. According to Dillon *et al.* (1993), it has two main characteristics: the participation is voluntary and the selection of sampling components is left to the researcher, as the components of the sample are chosen on the basis of where and when the research is being conducted. The main reason for selecting convenience sampling was to choose the most suitable people how can invite other people to participate in order to attract a sufficient number of bank customers using the Internet. The snowball sampling method was adopted in this research, as it involved first locating participants who had the necessary qualifications to be involved, and then using them to identify further suitable participants to be invited to take part in the survey (Dillon *et al.*, 1993; Hair *et al.*, 2010). In this research, snowball element participants were asked to forward invitations to other Saudi Bank Account holders. Practically, big names in twitter from different sectors (education, business, sport, art, media …) with high number of fans were asked kindly to retweet the survey's invitation to insure that diversity of participant. Similarly, several bank customers from several cities in Saudi Arabia were asked personally to resend the invitation through WhatsApp, Facebook email to other users. The researcher completed this stage through using the two sampling methods convenience and snowball sampling. The survey was designed and presented through a specialised website in surveys called "Qualtrics". The participants can access to this website through following a link that was distributed by the chosen E-channels. As explained above, the non-online users were not included in the present sampling, so that,

several methods were followed to choose the initial list of participants before snowballing start. Big Saudis names from several filed and subject having high amount of fans in Twitter and Facebook were appointed to start with. They were invited to participate and asked kindly to invite their Saudi followers to participate. Huge amount of emails were sent to leaders in public and private sector in the KSA asking for participating and inviting their email list to participate. WhatsApp messages were sent to the Saudis working and studying with the researcher asking for participating and inviting others to participate. These methods ensured the wide spreadable of the survey invitation around Saudis in the KSA and allowing some of Saudis abroad to participate as well.

5.8.4 Sample size

Sample size is a critical factor, as it has an important impact on the analysis and then the generalisation. According to Luck and Rubin (1987), the sample size needed depends on the statistical analysis tools to be used. This research needs a good sample size to be appropriate for the chosen statistical analysis technique. SEM is selected, as it obtains reliable results (Hair *et al.*, 2010). There is no agreement among authors about what is the appropriate sample size for the SEM method of analysis. Gorsuch (1997) recommends no less than 5 responses for each construct, with a minimum of one hundred responses for the total sample. Other researchers recommend no less than 200 respondents for SEM, with recommendations to increase the size for better results (Harris & Schaubroeck, 1990; Hair *et al.*, 2010; Kline, 2013). This research obtained a sample size of 945 respondents for superior quality results.

5.9 Data analysis

Coorley (1978, p. 13) argues that "*statistical techniques are to assist in establishing the plausibility of the theoretical model and to estimate the extent to which the various explanatory factors seem to be influencing the dependent variable*". This thesis aims to explore the impact of national cultural on customers' acceptance of OB in KSA. Two statistical tools were employed: the "Statistical Package for Social Sciences" (SPSS) and "Analysis Moment of Structures Software" (AMOS). Preliminary data were analysed using SPSS and the measurement model and the structural model were analysed using AMOS.

5.9.1 Preliminary data analysis

The questionnaire survey provided quantitative data that were analysed in the first stage by SPSS 20.0. SPSS is extensively employed by researchers in different fields, such as information systems, business studies and social sciences research (Hair *et al.*, 2010). It has been used for data coding and data screening, missing data, outlier identification and handling, and also to examine the normality of data. Several descriptive pieces of information (for example, mean values, percentages and frequencies) were obtained with SPSS 20.0. Demographic variables were analysed, and each construct was analysed separately to achieve preliminary information (Sekaran, 2013). In the first stage of analysis, EFA was generated using SPSS, and the data collected were condensed into a smaller number of variables, a process called "factor reduction" (Hair *et al.*, 2010). The process of EFA and its results are presented in the next chapter (Data Analysis). In order to gain an appropriate form of data, nominal and ordinal scales were mainly used in this study (Kline, 2013).

5.9.1.1 Missing data

According to Bryman and Cramer (2011), a majority of types of survey research have the problem of missing data, as they involve a large number of participants. The main problem of missing data is that they cause biased parameter estimates and lower the ability to indicate relationships in the data set (Hair *et al.,* 2010). Tabachnick and Fidell (2013) note that three factors can control the impact of missing data: the causes, the pattern and the rate of missing data. For example, when missing data pattern is systematic, any technique to resolve the problem of missing data may cause biased results, while, when missing values distribute randomly, any technique is assumed to produce acceptable results (Hair *et al.,* 2010).

There is no agreement among researcher regarding the acceptable amount of missing data. Olinsky, Chen & Harlow (2003) argue that, in the majority of cases, simple analysis can present reliable results when missing cases are less than approximately 5 per cent and the pattern is unimportant. Cohen, Cohen, West and Aiken (2013) raise the point that missing data on a specific factor can be seen as normal, if it is not more than 5 per cent and sometimes 10 per cent or less, while Kline (2013) suggests that missing data of less than 10 per cent can be deemed acceptable for analysis purposes.

To deal with and to solve missing data issues, this research follows Byrne (2013), who proposed several steps, starting with the investigation of the actual amount of missing values, followed by investigating the pattern of the missed values and concluding with

determining the most suitable techniques to deal with and solve the missing data issue. Chapter six explains these three steps in detail.

5.9.1.2 Outliers

Outliers are described by Hair *et al.* (2010) and by Kline (2013) as cases with an extreme value or an unusual combination of values that can be recognised as different cases from the remainder of observed cases in the collected data. West, Finch & Curran (1995) argue that statistical data analysis can be affected by outlier cases, which may affect the parameter estimates and the model fit.

According to Dillon *et al.* (1993), outlier cases can cause negative variance, which may impact the result of the data analysis. Outliers can be classified into two kinds: multivariate and univariate outliers. According to Kline (2013), any case that has a rare combination of values in more than one variable can be considered as a multivariate outlier, while any case that has an up-normal value in one variable can be considered as a univariate outlier. According to Tabachnick and Fidell (2013), there is no definite way to judge up-normal values; however, a standard deviation of more than three from the mean is a commonly accepted indicator and that it may be considered as an outlier. Kline (2013) explains that the univariate type of outlier can be found simply by identifying the *Z*-score frequency distributions.

Univariate outliers were not found in this study, because a five-point Likert scale was used ("strongly disagree" to "strongly agree"). Therefore, when participants chose either strongly agree or strongly disagree, they will be considered as outliers.

On the other hand, multivariate outliers values can be measured and found using the test of Mahalanobis distance (D2) (Byrne, 2013). Mahalanobis distance uses standard deviation units to measure the distance between every observation to compare it with all of the observations' means (Weston & Gore, 2006; Hair *et al.*, 2010; Kline, 2013). If a case has extreme values in one or more variables, D2 will be large for this case. Hair *et al.* (2010) and Kline (2013) recommend $p < 0.001$ with the D2 measure, as it is a conformist statistical significance test. SPSS 20.0 was used to measure Mahalanobis distance, comparing the degrees of freedom (df) equivalent to the independent factors quantity in the proposed model and $p < 0.001$ with the critical $\chi 2$ value.

5.9.1.3 Normality

Normality is defined by Hair *et al.* (2010; p. 79) as the "*shape of the data distribution or an individual metric variable and its correspondence to the normal distribution, which is the benchmark for statistical methods*". Data analysis, in general, and process of estimation or results' interpretation, specifically, may be affected by normality violation, especially with the type of analysis using the SEM technique. According to Hair *et al.* (2010) normality violation can increase the value of *chi*-square, and the fit indices and standard errors of parameter estimates can be also underestimated.

Normality can be identified visually or through some graphical analysis (i.e. histograms and normal probability plots). It is easier to compare the distribution of the observed data value by approximating normal distribution through these graphical analyses. According to Hair *et al.* (2010), data distribution is considered normal when its distribution largely follows diagonal lines. There are other indicators for normality of data, namely skewness

and kurtosis. Skewness shows symmetry in the data distribution. Kurtosis compares the normal distribution with measured tail heaviness in the distribution. Skewness and kurtosis score 0 in a normal distribution. It has been argued that when the score for skewness is outside the range of -1 to +1, it indicates a skewed distribution (Hair *et al.*, 2010). According to Kline (2013) and West *et al.* (1995), extreme skewness can only be considered if the skew values are greater than 3.0, and extreme kurtosis can be considered only if the kurtosis values became greater than 8.0 to over 20.0. The researcher employed factor analysis and SEM for the inferential statistical analysis.

5.10 Factor Analysis (FA)

Data with a large number of measured items may cause a problem regarding correlation analysis between the items. Therefore, researchers use FA techniques to deal with this problem and identify the number of factors underpinning the common set of measured items. Hair *et al.* (2010) look at FA as groping a big amount of items into a manageable set of variables. Field (2009, p. 619) lists the core aims of FA as follows:

1- Better understanding of item structure,

2- The building of an appropriate survey for better measurement, and

3- Making a more manageable dataset.

The researcher started by identifying the latent dimensions, as Hair *et al.* (2010) recommend, followed by defining how each factor explains its items, concluding with reducing the data. According to Hair *et al.* (2010), the acquired results can be reached through applying confirmatory factor analysis techniques (CFA) or EFA. Nonetheless,

CFA combines the factors' variables so as to be able to test hypotheses, while the EFA takes what is given by the data.

Following the recommendations of Zikmund, Babin, Carr and Griffin (2013) and Hair *et al.* (2010), the researcher first conducted EFA to assess the factor dimensions, and then performed CFA to test for and confirm relationships between the factors measured items. The following sub-section explains EFA using SPSS 20.0.

Exploratory factor Analysis (EFA)

EFA is defined by Parasuraman, Grewal and Krishnan (2009, p. 757) as "*a multivariate statistical technique that analyses data on a relatively large set of variables and produces a smaller set of factors, which are linear combinations of the original variables, so that the set of factors captures as much information as possible from the data set*". It is applied to group large amounts of items into a convenient number of factors to investigate variable relationships, without *a priori* hypotheses (Hair *et al.*, 2010).

According to Miller, Acton, Fullerton and Maltby (2009), EFA has two key steps' the first is extraction and the second is rotation. The factors underlying several variables can be determined through the extraction process, which has numerous methods, such as "principal component analysis" (PCA). Luck and Rubin (1987) argue that the high reliability and error-free assessment of variables the PCA method has, makes it one of the most popular methods. Rotation, the second step of EFA, helps researchers to explain the pattern of loadings easily. Rotation has several methods, such as orthogonal and oblique

(Tabachnick & Fidell, 2013). In the oblique method, the extracted factors are assumed to be correlated, while in the orthogonal method, the extracted factors are assumed to be independent (Miller *et al.*, 2009; Bryman & Cramer, 2011 and Tabachnick & Fidell, 2013).

PCA has been applied to perform factor analysis in this research, as well as the orthogonal rotation method with varimax rotation. As was discussed earlier, higher generalizability and the replicability power of the orthogonal methods (besides it producing less complicated results compared with oblique method), make it the preferred method of researchers (Tabachnick & Fidell, 2013). By completing the EFA process, CFA was applied to assess the identified dimensions through structural equations modelling.

5.11 Structural Equations Modelling (SEM)

Recently, SEM techniques have become a significant analytical tool in academic research, and have been used in several disciplines for a variety of analytical purposes (Byrne, 2013). According to Kline (2013), the relationships between several independent and dependent factors can be assessed simultaneously through SEM techniques. It is a group of statistical methods which aims to assess and to explain the existing relations among several latent variables (Hair *et al.*, 2010). Furthermore, it can test simultaneously the relationships between multiple dependent and independent latent variables, which accords the opportunity to examine both the model's measurement and structural components (Tabachnick & Fidell, 2013). SEM is then the most suitable analytical method for this research, as the conceptual model has multiple dependent-independent relations.

This study used the SEM software package AMOS 20 to assess the relationships between measured items for each construct and to examine the relationships between the independent and dependent factors. Several reasons are behind choosing SEM as the analytical method for this research. According to Hoyle (1995), SEM is able to assess and validate the relationships that exist among several factors in a single model through a systematic mechanism. Moreover, and according to Hair *et al.* (2010) and Byrne (2013), SEM provides influential and complex statistical methods to handle a model with complicated relations. Hoyle (1995) and Tabachnick and Fidell (2013) explain how SEM is capable of validating the relations among constructs and their indicators through applying the measurement model, while the SEM structural model is capable of assessing the relations among model constructs, as explained in the next sub-sections.

5.11.1 The measurement model

According to Byrne (2013), the measurement model CFA is an analytical method that is applied to confirm *a priori* hypotheses about the relationships among constructs and their measurement items. Therefore, it is used when the model factors and their measurement items are determined and need to be confirmed (Kline, 2013). Hair *et al.* (2010) and Byrne (2013) recommend that, in order for researchers to confirm and approve the scales derived from EFA, it is suggested that EFA should be applied before applying CFA. According to Hair *et al.* (2010), the measurement model has two tactics for assessing a model. The first is to examine the goodness of fit (GOF) indices, while the second is to test the model's validity and reliability. Both are used in this research, as explained in the next sub-sections.

5.11.1.1 Goodness of fit indices

According to Hair *et al.* (2010), there are several kinds of indices for fit measure, namely absolute, incremental and parsimonious. The former type (absolute) includes several indices (Hair *et al.*, 2010), such as the goodness of fit index (GFI), root mean square error of approximation (RMSEA) and also the likelihood ratio (*chi*-square - $\chi 2$). All of these absolute indices help to examine the overall model fit, while the second type (incremental indices) help comparing the theorised model to standard model (Hair *et al.*, 2010). Comparative and normed fit indices (CFA & NFA) are the main types of incremental fit indices. Finally, and according to Hair *et al.* (2010), in order to examine whether the hypothesised model is simpler or can be developed, researchers can use the parsimonious fit measure including Adjusted Goodness of Fit Index (AGFI).

Table 5-3 Recommended levels for fit measures

		Criteria
Absolute fit measures	*Chi* -square/degree of freedom **($\chi 2$/df)**	1<X2/df<3
	Goodness of fit index **(GFI)**	≥0.90
	Root mean square error of approximation **(RMSEA)**	<0.05
Incremental fit measures	Normated fit index **(NFI)**	≥0.90
	Comparative fit index **(CFI)**	≥0.90
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90

5.11.1.2 Model estimates

The measurement model needs to be evaluated in several ways, such as using some standardised estimates (i.e. critical ratio [cr] and standardised regression weight [factor loadings]), as well as the goodness of fit criteria (Hair *et al.*, 2010). Several cut-off points for these estimates are suggested by several researchers (Churchill, 1979, Byrne, 2013). Byrne (2013) suggest 0.7 as the cut-off point for factor loadings, while Churchill (1979)

accepts any factor loadings above the value of 0.5. Byrne (2013) recommends the value of the critical ratio to be above 1.96. This research follows the recommendations suggested by Churchill (1979) and Byrne (2013).

As previously stated, the measurement model CFA aims to investigate and assess the relations among the measured items and then link them with their unmeasured or latent variables (Kline, 2013). Consequently, researchers apply CFA with the purpose of identifying suitable patterns that can allocate the measured variables with their constructs (Hair *et al.*, 2010). According to Byrne (2013), Kline (2013) and Tabachnick and Fidell (2013), there are several methods that CFA researchers can choose from. A most suitable technique for this research is the maximum likelihood (ML) estimation method, and that is for several reasons. The main reason is that the ML method is more suitable for a medium-sized sample or greater, which is the case in the current research (Tabachnick & Fidell, 2013).

Furthermore, it is more suitable when all of the constructs in a conceptual model do not have at least five measured variables, as is the case in this research's conceptual model (Hair *et al.*, 2010). According to Byrne (2013) and Kline (2013), in the case of normal data having a medium-sized sample, and in the case of the Likert scale having four categories or more, compared with other techniques, the ML estimation method is recognised as the unbiased method to be used by researchers. It is argued that the ML estimation method is capable of improving the parameter estimates, by minimising the difference between the observed matrices and the covariance; as a result, it is the most widely used technique in

SEM analysis (Hair *et al.*, 2010; Kline, 2013; Tabachnick & Fidell, 2013). Followong the above discussion, this research uses the ML technique at the CFA stage.

5.11.2 Reliability

According to Sekaran (2013), reliability concerns the consistency, reproducibility and stability of the measured results. Reliability can help to find irregularities in the data and determine their impact on the results; as a result, reliability is a key factor in determining the quality of the measured items. When each construct in a conceptual model has more than one measured item, internal reliability becomes an important issue that needs to be investigated (Bryman & Cramer, 2011).

This research follows the recommendation of Sekaran (2013), that evaluation of the measured items' reliability can be done through testing the consistency of the participants' survey question answers. The internal consistency of every question was assessed using Cronbach's *alpha* reliability coefficients. Sekaran (2013) considers a 0.8 reliability coefficient as good reliability, 0.7 as acceptable, while under 0.6 is considered poor. According to Hair *et al.* (2010), adequate internal consistency can be achieved by high reliability (0.7 Cronbach's *alpha* or higher). Consequently, and to decide the reliability of every item in the data and to determine the reliability of each construct used in the model, this research employed 0.7 Cronbach's *alpha* as a minimum cut-off value.

5.11.3 Validity

According to Sekaran (2013), validity is associated with the measures' accuracy. Validity has been defined by Zikmund *et al.* (2013, p. 331) as "*the ability of a scale to measure what it is intended to be measured*". Therefore, it can be understood that validity measures how the model factors and their measured items are related. Moreover, it examines to what extent these measured items can represent the factors that they were purported to measure. According to Hair *et al.* (2010), when the model constructs and their measured items show better fit, the validity will be greater. There are several types of validity, namely convergent, discriminant and nomological. These types of validity are discussed in the next sub-sections.

5.11.3.1 Convergent Validity

Hair *et al.* (2010) considered convergent validity as the high proportion of the variance that several measured items of a single construct have in common. The constructs' convergent validity can be evaluated by assessing construct reliability (CR), average variance extracted (AVE) and construct factor loadings (Hair *et al.*, 2010). Hair *et al.* (2010) recommend that, to reach acceptable convergent validity, reliability estimates should: show higher than 0.7, AVE estimation above 0.5, and standardised loading estimates higher than 0.7. As a result, and for convergent validity evaluation, AVE > .5, reliability > .7 and the loadings minimum cut-off point > .7 were followed in this research.

5.11.3.2 Discriminant validity

Discriminant validity described by Hair *et al.* (2010) as the degree to which every construct is different from other constructs. The researcher examined discriminant validity by comparing Squared Interconstruct Correlations (SIC) with AVE. In order to prove the

discriminant validity of the construct, the AVE estimates need to be higher than the SIC estimates.

5.11.3.3 Nomological validity

According to Hair *et al.* (2010) nomological validity is assessed through looking at the logic of the relationships among the proposed constructs in a conceptual model. It can be referred to as how a single construct performs within a group of related constructs (Hair *et al.*, 2010). Therefore, to support the nomological validity for a proposed model, latent factors need to be proven to be related to each other in a logical way. The proposed conceptual model and its nine constructs, in this research, were evaluated if they positively related to each other as hypothesized. Following Hair *et al.* (2010), the nomological validity in this research model was evaluated by assessing the construct correlations.

5.11.4 Structural model

As explained earlier, SEM analysis was performed using a two-stage approach: the measurement model (CFA) and the structural model. In the CFA step, unidimensionality, validity and reliability were examined. The next step in SEM is the structural model. According to Hair *et al.* (2010) and Kline (2013), the structural model can be obtained through investigating the proposed relationships among the conceptual model's constructs. The proposed model shows the relationships hypothesised among the constructs, which will be tested at this stage. Structural model evaluation aims to identify the influence between constructs in a conceptual model (Byrne, 2013). The next chapter presents the results for the structural model testing.

5.12 Ethical considerations

Research ethics are construed as a code of conduct and expected norm of behaviour required of researchers. It is imperative that ethnical conduct is reflected in the behaviour of the researcher conducting any kind of investigation. Participants who provide data must remain unbiased. Those who analyse, interpret and present results must also be ethical throughout the process. Confidentiality is paramount to the success of a project, and it must be safeguarded and managed properly to remain ethical. Other steps, including data collection, analysis, reports, the dissemination of information on the Internet and how participants are treated must also follow ethical guidelines (Sekaran, 2013).

During this research, the researcher focused on certain aspects and considered ethical practices at all times. A primary consideration of the researcher involved obtaining respondent results and ensuring that all information was kept strictly confidential, in order to protect the privacy of the participants. The reasoning behind the research was explained to the respondents, prior to commencement, whether they were the respondents in focus groups, pilot studies, interviews or questionnaires conducted verbally or online.

Furthermore, each respondent that participated in surveys was given the opportunity to withdraw participation at any stage and the details of the researcher and his supervisor were provided in consent form, in order to allow respondents access to this option. All the research was conducted with full ethical responsibility taken into account, in accordance with the general principles of research ethics and the general ethics agreed by the Research

Ethics Committee in the School of Information Systems, Computing and Mathematics at Brunel University, which received the researcher's application form for ethical approval and approved it before the conduct of the study (appendix).

Chapter Six Data Analysis

6.1 Introduction

This chapter of the thesis analyses the main quantitative data collected in the research. Response rates and related issues are discussed in the first section. The section after that introduces the participants. Screening the data and treating its missing values are described in the third section of the chapter. Descriptive statistics for the model constructs and its measured items are presented in the fourth section. The fifth section describes the results from the exploratory factor analysis. CFA is presented in the final section, which also presents the findings from hypothesis testing.

6.2 Rate and bias of response

The analysis of the data, the discussion of the reliability of the findings, the results of the generalisation, the rate of response and the bias of non-response are discussed in the following sub-sections for their important role in the study.

6.2.1 Rate of response

As this research used an online survey method, it makes the survey accessible through a distributed link leading to the survey website. The link was distributed electronically through several channels (emails, Facebook, Twitter, WhatsApp and other social networks). 3,704 people were attracted to hit the survey's website link. All of them proceeded from the first page (survey letter) to the second page (the beginning of the questions). Only 954 of those surveyed were able to submit a completed survey. After revising and monitoring the completed surveys, only 945 responses were used in the study.

9 responses were deleted as they classified as unengaged respondents (same answer for all of the survey questions); the result was a 26% response rate.

6.2.2 Non-response bias

It is commonly known that it is unmanageable for researchers to obtain demographic data for entire populations, so as to compare them and carry out a bias test (Tashakkori & Teddlie, 2010; Bryman & Bell, 2011). However, Babbie (1990) suggested a method to check any possible non-response bias. For example, Babbie (1990) assumes that people who received the survey and did not respond were more like those who responded late rather than those who responded instantaneously. Consequently, testing non-response bias used early respondents' surveys and late respondents' ones. Four demographic variables (gender, age, education and employment) were compared between the earliest 40 participants and the latest 40 participants. To gain a clear separation between the first 40 and the latest 40 responses, the responses in between were excluded from the response bias analysis. This analysis was performed using an analysis of variance (ANOVA) test, in which the mean for the early responses was compared with the mean for the late responses. Table 6.1 presents the results.

Table 6-1 Analysis of Response Bias

Demographics characteristics	ANOVA (early and late 40)	
	F	Sig.
Gender	1.516	0.222
Age	.528	0.755
Education Level	.907	0.464

Employment	1.803	0.123

It can be seen from Table 6.1 that the differences between the first and last participants were insignificant. Therefore, it can be said that there is no difference between non-respondents and respondents, and non-response bias is not recognised as a limitation. This result leads to the conclusion that this survey produced an unbiased population sample.

6.2.3 Saudis living in KSA and abroad

Although this study targeted mainly the Saudis who are living in the KSA, it allowed any Saudi living abroad to participate. 836 responses (88.5%) of the total accepted responses were Saudis living inside Saudi Arabia while 109 responses (11.5%) were living abroad. Therefore and according to Hair *et al.* (2010), an analysis need to be done to confirm that there is no difference in the sample and the sample is coherence through performing an analysis of variance (ANOVA) test, in which the mean for the responses from Saudis living in KSA was compared with the mean for the responses from Saudis living abroad. Table 6.2 presents the results.

Table 6-2 Analysis of variance

Analysis of variance		
Variables	ANOVA (living in KSA & living abroad)	
	F	Sig.
UA	3.318	0.069
BI	2.685	0.102
PU	0.067	0.796

PEOU	0.003	0.96
SI	5.994	0.075
RC	0.447	0.504
PT	0.035	0.851
PQ	1.101	0.294
PI	14.946	0.081

It can be seen from Table 6.2 that the differences between the participants living in KSA and the participants living abroad were insignificant. Therefore, it can be said that there is no difference between Saudis living in KSA and living abroad. This result leads to the conclusion that this survey produced a coherence sample.

6.3 Participant characteristics

The next sub-sections presents the demographic characteristics of the survey questionnaire respondents.

Gender

From the demographic analysis, 68.4 percent of the participants were males (646 male) while 299 females participated in the survey (31.6 percent of the sample size) (Table 6.3).

Table 6-3 Gender

	Number	%	Valid %	Cumulative %
Male	646	68.4	68.4	68.4
Female	299	31.6	31.6	100.0

Table 6-3 Gender

	Number	%	Valid %	Cumulative %
Male	646	68.4	68.4	68.4
Female	299	31.6	31.6	100.0
Total	945	100.0	100.0	

Age

On the age classification, the majority of the participants were from the age group from 20 to less than 30 and the age group from 30 to less than 40 (36.2%, 39.3%, respectively). While 17.8 percent of the participants were in the age group from 40 to less than 50, 4 percent of the respondents were in the age group from 50 to less than 60, 23 respondents were under the age of 20 (2.4%) and only 3 respondents were 60 years old and more (.3%) (Table 6.4).

Table 6-4 Age

	Number	%	Valid %	Cumulative %
less than 20	23	2.4	2.4	2.4
from 20 to 30	342	36.2	36.2	38.6
from 30 to 40	371	39.3	39.3	77.9
from 40 to 50	168	17.8	17.8	95.7
from 50 to 60	38	4.0	4.0	99.7
60 and over	3	.3	.3	100.0

Table 6-4 Age

	Number	%	Valid %	Cumulative %
less than 20	23	2.4	2.4	2.4
from 20 to 30	342	36.2	36.2	38.6
from 30 to 40	371	39.3	39.3	77.9
from 40 to 50	168	17.8	17.8	95.7
from 50 to 60	38	4.0	4.0	99.7
60 and over	3	.3	.3	100.0
Total	945	100.0	100.0	

Education level

The participants can be divided into five educational levels according to their responses. Slightly under half the respondents held bachelor degrees (49.2%), a third of the respondents had higher education qualifications (33.3%), 82 respondents held a diploma (8.7%) and 77 respondents had a high school certificate or lower (8.1%). There were 6 respondents unclassified or with other qualifications (.6%) (Table 6.5).

Table 6-5 Education level

	number	%	Valid %	Cumulative %
High school & below	77	8.1	8.1	8.1
Diploma	82	8.7	8.7	16.8

Bachelor	465	49.2	49.2	66.0
Higher education	315	33.3	33.3	99.4
Other	6	.6	.6	100.0
Total	945	100.0	100.0	

Employment

Based on the type of employment, a slight majority worked in the public sector (52.8%) while 12 percent were employed in the private sector. The rest of the respondents were students (18.9%), non-workers (10.6%), retired (2.2%) or had their own businesses (3.5%) (Table 6.6).

Table 6-6 Employment

	number	%	Valid %	Cumulative %
Student	179	18.9	18.9	18.9
Public sector	499	52.8	52.8	71.7
Private sector	113	12.0	12.0	83.7
Own business	33	3.5	3.5	87.2
Retired	21	2.2	2.2	89.4

Non-worker	100	10.6	10.6	100.0
Total	945	100.0	100.0	

Computer Knowledge

The respondents classified themselves as regards their computer knowledge into five categories. A small majority classified them as having very good knowledge in using computers (56% of the respondents), while around a third of them classified themselves as having a good knowledge. The remainder classified themselves as having a moderate level of computer knowledge (12.4%), poor knowledge (1%) and only two had very poor knowledge (.2%) (Table 6.7).

Table 6-7 Computer Knowledge

	number	%	Valid %	Cumulative %
Very good	529	56.0	56.0	56.0
Good	288	30.5	30.5	86.5
Moderate	117	12.4	12.4	98.8
Poor	9	1.0	1.0	99.8

Very poor	2	.2	.2	100.0
Total	945	100.0	100.0	

Internet knowledge

Regarding knowledge about the Internet, the participants classified themselves into five categories. The majority of respondents had very good knowledge about using the Internet (61.4%), while 30.1 percent had good knowledge. The rest of the respondents had a moderate level of knowledge (7.7%) and poor knowledge (.8%) (Table 6.8).

Table 6-8 Internet Knowledge

	Number	%	Valid %	Cumulative %
Very good	580	61.4	61.4	61.4
Good	284	30.1	30.1	91.4
Moderate	73	7.7	7.7	99.2
Poor	8	.8	.8	100.0
Total	945	100.0	100.0	

Internet Usage

The vast majority of the respondents had been using the Internet for more than five years (92%) and 6.5 percent of them had been using it for three to five years. Only 1.5 percent of the respondents had started using it during the last three years (Table 6.9).

Table 6-9 Internet Usage

	Number	%	Valid %	Cumulative %
More than 5 years	869	92.0	92.0	92.0
3 years - less than 5 years	61	6.5	6.5	98.4
1 year - less than 3 years	13	1.4	1.4	99.8
Less than 1 year	1	.1	.1	99.9
Never used it	1	.1	.1	100.0
Total	945	100.0	100.0	

Online banking adoption

Regarding online banking adoption, 42.9 percent of the respondents had adopted five years previously, 25.5% had adopted it 3 to 5 years previously, 17.5% had adopted it from 1 to 3 years previously, 7.2% had adopted it 1 to 3 years previously, while 7 percent had not yet adopted it (Table 6.10).

Table 6-10 Using Online Banking

	Number	%	Valid %	Cumulative %
More than 5 years	405	42.9	42.9	42.9
3 to 5 years	241	25.5	25.5	68.4
1 to 3 years	165	17.5	17.5	85.8
Less than 1 year	68	7.2	7.2	93.0
Never used it	66	7.0	7.0	100.0
Total	945	100.0	100.0	

Internet Usage per Day

When the respondents were asked to give an indication as to how long they used the Internet per day, less than half of them (41.5%) stated that they used the Internet for more than 3 hours a day, 33.3 percent stated that they used the Internet from 2 to 3 hours daily, 17 percent used the Internet from one hour to 2 hours a day, while the rest used it for less than an hour per day (Table 6.11).

Table 6-11 Internet Usage per Day

	Number	%	Valid %	Cumulative %

More than 3h	392	41.5	41.5	41.5
2h to 3h	315	33.3	33.3	74.8
1h to 2h	161	17.0	17.0	91.9
Less than 1h	75	7.9	7.9	99.8
I do not use it	2	.2	.2	100.0
Total	945	100.0	100.0	

Daily banking methods

Two thirds of the respondents reported that they used Internet banking to do their daily banking transactions (66.9%), while only 5 percent visit their branches. The remainder use tele-banking (10.6%) and ATMs (17.6%) to do their daily transactions (Table 6.12).

Table 6-12 Daily banking methods

	Number	%	Valid %	Cumulative %
Traditional branch	47	5.0	5.0	5.0
Tele-banking	100	10.6	10.6	15.6
ATMs	166	17.6	17.6	33.1

Online banking	632	66.9	66.9	100.0
Total	945	100.0	100.0	

6.4 Statistical description of constructs

The descriptive statistics for the construct items that were included in the survey are presented in next sub-sections.

6.4.1 Behavioural Intention (BI)

The participants showed their behavioural intention to use online banking in the future through rating and responding to five questions on the five-point Likert scale. The participants' responses for each question (item) are summarised below (Table 6.13). The mean for the BI scores were from 4.71 (±.615) to 4.40 (±.823).

Table 6-13 Descriptive statistics for the BI measured items

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
BI1	945	4.71	.615	.378	-2.665	8.779
BI2	945	4.40	.823	.677	-1.457	1.978
BI3	945	4.53	.738	.544	-1.911	4.475
BI4	945	4.67	.612	.375	-2.244	6.560

BI5	945	4.52	.736	.542	-1.619	2.717
Valid N (listwise)	945					

6.4.2 Perceived Usefulness (PU)

The participants showed their perceptions about online banking usefulness through rating and responding to five questions on the five-point Likert scale. The participants' responses for each question (item) are summarised below (Table 6.14). The mean scores were from 4.74 (±.538) to 4.38 (±.774).

Table 6-14 PU's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
PU1	945	4.74	.538	.290	-2.599	9.572
PU2	945	4.68	.599	.358	-2.199	6.296
PU3	945	4.38	.774	.599	-1.314	1.905
PU4	945	4.66	.619	.384	-2.243	6.735
PU5	945	4.41	.768	.590	-1.301	1.643
Valid N (listwise)	945					

6.4.3 Perceived Ease Of Use (PEOU)

The participants' perceptions of the ease of use of online banking services are measured by their rating and responses to the five questions on the five point Likert scale. The

participants' responses for each question (item) are summarised below (Table 6.15). The mean scores were from 4.36 (±.728) to 3.99 (±.851).

Table 6-15 PEOU's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
PEOU1	945	3.99	.851	.723	-.785	.538
PEOU2	945	4.12	.821	.674	-.866	.577
PEOU3	945	4.10	.820	.672	-.839	.720
PEOU4	945	4.36	.728	.529	-1.051	1.141
PEOU5	945	4.33	.743	.552	-1.173	1.972
Valid N (listwise)	945					

6.4.4 Perceived Trust (PT)

The participants' PT in their banks and online banking websites were measured by their rating and responses to the five questions on the five point Likert scale. The participants' responses for each question (item) are summarised below (Table 6.16). The mean scores were from 3.62 (±.926) to 4.05 (±.832).

Table 6-16 PT's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"

PT1	945	3.86	.907	.822	-.742	.622
PT2	945	3.74	.883	.780	-.362	-.029
PT3	945	3.62	.861	.741	-.114	-.077
PT4	945	3.62	.926	.857	-.384	.032
PT5	945	4.05	.832	.692	-.853	1.007
Valid N (listwise)	945					

6.4.5 Resistance to Change (RC)

The participants showed how much they resist change by rating and responding to five questions on five point Likert scale. The participants' responses for each question (item) are summarised below (Table 6.17). The mean scores were from 1.43 (±.680) to 1.76 (±.881).

Table 6-17 RC's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
RC1	945	1.54	.724	.524	1.486	2.742
RC2	945	1.43	.680	.462	1.940	5.074
RC3	945	1.54	.794	.630	1.751	3.574
RC4	945	1.53	.764	.584	1.618	3.036
RC5	945	1.76	.881	.777	1.060	.780

Valid N (listwise)	945					

6.4.6 Perceived Quantity of Users (PQ)

The participants' perceptions about the numbers using online banking around them was measured by participants' rating and responding to five questions on the five-point Likert scale. The participants' responses for each question (item) are summarised below (Table 6.18). The mean scores range from 3.47 (±.961) to 3.73 (±.937).

Table 6-18 PQ's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
PQ1	945	3.73	.937	.877	-.717	.261
PQ2	945	3.50	1.084	1.176	-.491	-.504
PQ3	945	3.47	.961	.923	-.322	-.359
PQ4	945	3.69	.929	.864	-.582	.040
PQ5	945	3.64	.918	.842	-.547	.133
Valid N (listwise)	945					

6.4.7 Perceived Image (PI)

The participants' perceptions about the image they have about online banking adopters were measured by participants' rating and responses to five questions on the five-point

Likert scales. The participants' responses for each question (item) are summarised below (Table 6.19). The mean scores range from 3.75 (±1.001) to 4.11 (±.832).

Table 6-19 PI's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
PI1	945	3.94	.922	.850	-.743	.227
PI2	945	4.11	.832	.693	-.958	1.056
PI3	945	3.79	.994	.988	-.570	-.234
PI4	945	3.82	.999	.999	-.644	-.037
PI5	945	3.75	1.001	1.001	-.549	-.149
Valid N (listwise)	945					

6.4.8 Social Influence (SI)

The degree to which the participants perceived that important people around them believed that they should use online banking websites and services was measured by participants' rating of five questions on the five-point Likert scale. The participants' responses to each question (item) are summarised below (Table 6.20). The mean scores were from 3.78 (±.932) to 4.20 (±.789).

Table 6-20 SI's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"

SI1	945	4.20	.789	.622	-.986	1.432
SI2	945	3.88	.994	.989	-.555	-.462
SI3	945	3.78	.932	.869	-.416	-.316
SI4	945	3.89	.900	.811	-.628	.087
SI5	945	3.89	.900	.810	-.527	-.122
Valid N (listwise)	945					

6.4.9 Uncertainty Avoidance (UA)

The participants' perceptions about how they feel threatened by uncertain or unknown situations was measured by participants' rating and responses to five questions on the five-point Likert scale. The participants' responses to each question (item) are summarised below (Table 6.21). The mean scores were from 1.85 (±1.042) to 4.60 (±.788).

Table 6-21 UA's measured items (descriptive statistics)

	Number	"Mean"	"Std. Deviation"	"Variance"	"Skewness"	"Kurtosis"
UA1	945	4.40	.788	.621	-1.628	3.538
UA2	945	4.60	.664	.441	-2.254	7.325
UA3	945	2.45	1.225	1.502	.518	-.741
UA4	945	3.60	1.091	1.191	-.495	-.532
UA5	945	1.85	1.042	1.085	1.396	1.488
Valid N (listwise)	945					

6.5 Missing Data

As missing data had been found in the research survey, the next three sections discuss the missing values, and the randomness of the missing values will be investigated, followed by a description of how the missing data were controlled.

6.5.1 Quantity of Missing Data

The quantity of missing data and percentages are presented in Table 6.22. There are no missing data for the majority of the survey items, except the UA items. UA items had less than .8 percent of missed values, UA4 with 0.8 percent being the highest. It is acceptable to have this number of missing values, which can be considered as being very low (Little & Rubin, 2002). The reason may be referred to a technical issue in the survey design, as there was a reminder for respondents to complete any missing questions, but it did not specify what they were to do with these few questions.

Table 6-22 Missing Data

			Missing	
		N	Count	Percent
Behavioural intention	BI1	954	0	0.0
	BI2	954	0	0.0
	BI3	954	0	0.0
	BI4	954	0	0.0
	BI5	954	0	0.0
Perceived usefulness	PU1	954	0	0.0
	PU2	954	0	0.0

	PU3	954	0	0.0
	PU4	954	0	0.0
	PU5	954	0	0.0
Perceived ease of use	PEOU1	954	0	0.0
	PEOU2	954	0	0.0
	PEOU3	954	0	0.0
	PEOU4	954	0	0.0
	PEOU5	954	0	0.0
Perceived trust	PT1	954	0	0.0
	PT2	954	0	0.0
	PT3	954	0	0.0
	PT4	954	0	0.0
	PT5	954	0	0.0
Resistance to change	RC1	954	0	0.0
	RC2	954	0	0.0
	RC3	954	0	0.0
	RC4	954	0	0.0
	RC5	954	0	0.0
Perceived quantity	PQ1	954	0	0.0
	PQ 2	954	0	0.0
	PQ 3	954	0	0.0
	PQ 4	954	0	0.0
	PQ 5	954	0	0.0
Perceived image	PI1	954	0	0.0
	PI2	954	0	0.0
	PI3	954	0	0.0
	PI4	954	0	0.0
	PI5	954	0	0.0
Social influence	SI1	954	0	0.0
	SI2	954	0	0.0
	SI3	954	0	0.0
	SI4	954	0	0.0
	SI5	954	0	0.0
Uncertainty avoidance	UA1	949	5	.5
	UA2	950	4	.4
	UA3	951	3	.3
	UA4	946	8	.8
	UA5	949	5	.5

6.5.2 Randomness of missing values

It is important to check the missing values and their randomness before proceeding to the main data analysis, even though there are no missing values apart from one construct (UA). The randomness of missing values was investigated through Little's *chi*-square. According to Little (1988), when the test of missing completely at random (MCAR) shows the *p* value to be insignificant, the data can be supposed to be MCAR. Table 6.23 shows the results of Little's MCAR test, which confirms that the test is insignificant (p = .168). Consequently, the missing values in this research are MCAR.

Table 6-23 MCAR test

Chi-Square	326.659
DF	303
Sig.	0.168

6.5.3 Treatment of missing data

It was clear that the level of missing data was at a reasonable level, besides it is considered missing completely at random. Consequently, and as suggested by Skrondal and Rabe-Hesketh (2004) and Byrne (2013), the 'regression imputation' method was applied in this research to replace the missing values. Regression imputation was performed through estimating the relationships among variables, followed by estimating the missing values using the regression coefficients delivered by SPSS 20.0.

6.6 Univariate and multivariate normality

Kline (2013) recommends that the data collection *z*-scores frequency distributions are identified in order to determine the univariate outliers in the data. As this research uses a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5), there were no identified univariate outliers in the data collected. That is because the selection of strongly disagree or strongly agree gave outlier results.

On the other hand, Mahalanobis Distance (D2) was used to determine any multivariate outliers in the data. There were thirty-one cases of D2 being above the critical value, as shown in Table 6.24.

Hair *et al.* (2010) argue that, although removing outlier cases may improve the multivariate analysis, it will increase the limitation of generalizability. Furthermore, Weston and Gore (2006) assure that multivariate normality can be improved through transform and removal of univariate or multivariate outliers, but researchers need to be aware that this action is not normally needed, as it hinders interpretation. Consequently, the reported multivariate outlier cases will be retained for better generalizability.

Table 6-24 Multivariate outliers

Observation number	Mahalanobis d-squared
580	140.896
787	137.974
608	133.511
71	130.955
19	129.547

285	124.128
82	120.098
138	119.643
566	116.86
162	115.957
889	114.692
897	105.347
726	105.275
709	104.16
896	101.223
628	100.757
81	97.877
9	93.789
95	91.644
72	87.666
799	86.862
57	86.457
532	85.581
759	81.865
207	79.87
917	79.671
223	79.319
673	78.367
770	76.071
107	74.272
928	73.945

6.7 Multicollinearity

According to Myers (1997), the success of a model can be affected negatively by an existence of multicollinearity which impact the model ability to predict the relationships between constructs. Although the CFA are adopted in this study which produce accurate results regarding the relationships among constructs, this study investigate if there are any existence of multicollinearity before proceeding to SEM stage. The tolerance and variance inflation factor (VIF) are used in SPSS to trace whether the data suffers from multicollinearity (Hair *et al.*, 2010). According to Myers (1997), the data has a problem that needs to be solved if the value of VIF exceeds 10. Furthermore, the closer the value of tolerance to 0, the stronger relationship exists between a construct and other constructs.

This study applied both tolerance and VIF test to assess the multicollinearity. From Table 6.25 It can be seen that this study data do not suffer from multicollinearity as tolerance value for all constructs are above 0.5 and the value of VIF for all constructs are below 10 as recommended by (Myers, 1997; Hair *et al.*, 2010). Consequently, both tolerance and VIF values suggest that all the constructs in the model have no existence of multicollinearity.

Table 6-25 Test of multicollinearity

	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
UA	0.962	1.04
PU	0.581	1.722
PEOU	0.632	1.581
SI	0.725	1.38
RC	0.577	2.094
PT	0.574	1.741
PQ	0.738	1.354
PI	0.753	1.329

6.8 Exploratory Factor Analysis (EFA)

This section explains the process of conducting exploratory factor analysis using the orthogonal method with varimax rotation and application of Principal Component Analysis (PCA) through SPSS 20.0.

6.8.1 Measure of KMO and Bartlett Test

Before conducting factor analysis for the collected data, there are two statistical measures that can help to calculate the factorability of the collected data: Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Weston and Gore, 2006; Hair *et al.*, 2010). In order to consider the collected data as appropriate for factor analysis, the Bartlett test of sphericity should be significant (p<.05). In addition, Tabachnick and Fidell (2013) suggest .6 as a minimum value for good factor analysis. Table 6.26 shows the outcome of KMO and Bartlett's Test. It indicates clearly that the measure of KMO was .931 and the test of Bartlett was p <.001. As a result, factor analysis can be conducted appropriately with this collected data.

Table 6-26 Test of KMO and Bartlett

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.931
Bartlett's Test of Sphericity	Approx. *Chi*-Square	23047.688
	df	861
	Sig.	.000

6.8.2 Communalities

From Table 6.27 it can be seen that the communalities between the loading of measured items ranged between .517 for item RC5 and .863 for item SI4 with a total average of .70. Three items were deleted as they were loading less than .5 (UA4, SI1 and SI2).

Table 6-27 Communalities

	Initial	Extraction
UA1	1.000	.765

UA2	1.000	.733
UA3	1.000	.683
UA5	1.000	.645
BI1	1.000	.703
BI2	1.000	.716
BI3	1.000	.695
BI4	1.000	.777
BI5	1.000	.701
PU1	1.000	.700
PU2	1.000	.731
PU3	1.000	.628
PU4	1.000	.747
PU5	1.000	.557
PEU1	1.000	.699
PEU2	1.000	.672
PEU3	1.000	.715
PEU4	1.000	.591
PEU5	1.000	.714
SI3	1.000	.825
SI4	1.000	.863
SI5	1.000	.836
RC1	1.000	.610
RC2	1.000	.706
RC3	1.000	.641
RC4	1.000	.661
RC5	1.000	.517
PT1	1.000	.730
PT2	1.000	.711
PT3	1.000	.689
PT4	1.000	.658
PT5	1.000	.666
PQ1	1.000	.670
PQ2	1.000	.569
PQ3	1.000	.757
PQ4	1.000	.745
PQ5	1.000	.767
PI1	1.000	.615
PI2	1.000	.585
PI3	1.000	.688
PI4	1.000	.710
PI5	1.000	.688

Extraction Method: Principal Component Analysis.

6.8.3 Factor extraction

Factor extraction was applied using Kaiser's criterion of eigenvalues and the scree plot. The identification of ten factors resulting from factor extraction through applying the 'eigenvalues-greater-than-1' criterion are shown below (Table 6.28). From the table, 29.259% of the total variance in the model was explained by the first factor, while the other nine factors explain the rest of the variance.

Table 6-28 Extracted factors and explained variance.

Component	"Initial Eigenvalues"			"Extraction Sums of Squared Loadings"			"Rotation Sums of Squared Loadings[a]"
	Total	Variance	Cumulative	Total	Variance	Cumulative	Total
1	11.411	29.259	29.259	11.411	29.259	29.259	7.814
2	3.145	8.064	37.323	3.145	8.064	37.323	5.781
3	2.655	6.807	44.131	2.655	6.807	44.131	6.710
4	2.253	5.777	49.908	2.253	5.777	49.908	5.057
5	1.624	4.163	54.071	1.624	4.163	54.071	7.072
6	1.597	4.095	58.167	1.597	4.095	58.167	7.580
7	1.349	3.460	61.627	1.349	3.460	61.627	4.966
8	1.318	3.380	65.007	1.318	3.380	65.007	1.839
9	1.159	2.972	67.979	1.159	2.972	67.979	4.095
10	1.007	2.581	70.561	1.007	2.581	70.561	1.565
11	.841	2.157	72.718				

Extraction Method: Principal Component Analysis

The Scree plot test was used in this research to confirm the number of extracted factors. Figure 6.1 shows the extracted factors in the proposed model with eigenvalues greater than

one. Figure 6.1 shows the extraction of ten factors, similar to the eigenvalue criterion number of extracted factors (table 6.28).

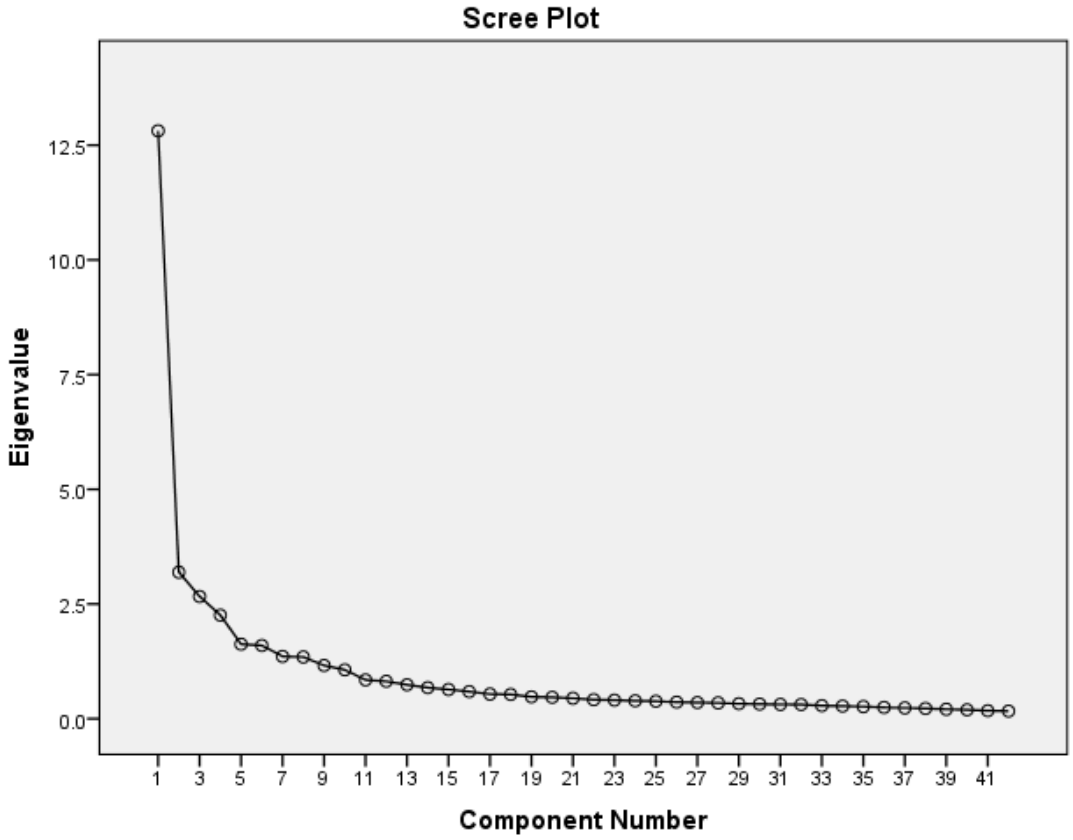


Figure 6.1 The test of scree plot

6.8.4 Measured item loadings on constructs

The loadings of the 45 measured items on their constructs (nine constructs) are shown in the pattern matrix table (6.29). The Pattern matrix table reveals that the measured items loaded highly on their proposed latent factors. In addition, the cross-loadings among factors were below the minimum criteria of .40, apart from six items (SI1, SI2, UA4, UA5, RC1 and RC2). Those items were deleted for their low loading on their constructs and cross-loading with others. The loading of the remaining 39 measured items on their latent

factors (constructs) shows the divergent and convergent validity of the measured items and proposed factors. In addition the top of Table 6.29 shows the reliability (Cronbach's *alpha)* for each factor.

Table 6-29 Pattern Matrix

	Component								
	1	2	3	4	5	6	7	8	9
Cronbach's *alpha*	0.90	0.89	0.88	0.86	0.87	0.86	0.91	0.68	0.81
BI3	.895								
BI2	.864								
BI4	.855								
BI1	.843								
BI5	.716								
PQ3		.890							
PQ5		.865							
PQ4		.857							
PQ1		.809							
PQ2		.708							
PT4			.859						
PT3			.833						
PT2			.815						
PT1			.767						
PT5			.759						
PI4				.845					
PI5				.821					
PI3				.788					
PI1				.772					
PI2				.723					
PEU3					.863				
PEU1					.861				
PEU5					.815				
PEU2					.801				
PEU4					.587				
PU4						.891			
PU2						.803			
PU1						.768			
PU3						.738			
PU5						.664			
SI4							.934		

SI3							.925		
SI5							.881		
UA1								.877	
UA2								.836	
UA3								.846	
RC4									.872
RC3									.856
RC5									.779

6.9 Structural Equation Modelling (SEM)

According to Hair *et al.* (2010), SEM is a mixture of statistical methods that attempts to find explanations for the relationships among various factors. SEM allows researchers to investigate, simultaneously, the interrelationships between several independent and dependent factors.

The SEM analytical method was chosen for data analysis in this research for several reasons. According to Hoyle (1995), SEM has the ability to test and validate existing relationships among several factors in a single model, through a systematic mechanism. Moreover, and according to Hair *et al.* (2010) and Byrne (2013), SEM provides influential and difficult statistical methods to handle a model with complicated relations. Hoyle (1995) and Tabachnick and Fidell (2013) explain how SEM is capable of validating the relations between constructs and their indicators, through applying the measurement model, while the structural model SEM is capable of assessing the relations between model constructs.

As explained in Chapter five, SEM analysis was performed using a two-stage approach: the measurement model (CFA) and the structural model. In the CFA step, unidimensionality, validity and reliability were examined. Therefore, the next step in SEM is the structural model. According to Hair *et al.* (2010) and Kline (2013), the structural model can be applied through investigating the proposed relationships among the conceptual model's constructs. These two stages were performed using AMOS software 20.0.

6.9.1 Measurement model (CFA)

According to Byrne (2013), CFA is an analytical method that is applied to confirm *a priori* hypotheses about the relationships between the constructs and their measurement items. According to Hair *et al.* (2010), the measurement model has two tactics to assess a model. The first one is to examine the goodness of fit (GOF) indices, while the second assesses the model's reliability and validity. Both are used in this research, as explained in the next sub-sections.

6.9.1.1 Goodness of fit indices

There are several kinds of indices for fit measure, namely absolute, parsimonious and incremental (Hair *et al.,* 2010). Table 5.33 presents the results of the fit measures used in this research and their suggested levels.

Nine factors were included in setting up the measurement model using the CFA test, namely Behavioural Intention (BI); Perceived Ease Of Use (PEOU); Perceived Usefulness (PU); Perceived Trust (PT); Resistance to Change (RC); Perceived Quantity (PQ); Social

Influence (SI); Perceived Image (PI) and Uncertainty Avoidance (UA). Those factors (Figure 6.2) were measured using several indicators for each, and a total of the 39 indicator items were derived from the EFA stage. Consistent with the recommendation of Weston and Gore (2006) and Hair *et al.* (2010), eight items were deleted as they were the lowest loading items in their construct. For example, Perceived Quantity (PQ) was measured by 4 items, PQ1, PQ2, PQ3 and PQ5 after deleting the lowest loading item PQ4. The deleted items were PU1, PU5, PEU2, PEU4, PQ1, PT3, PT4 and PI5 (see table 6.30).

Table 6-30 Items loading on their constructs

Items loading on their constructs			
BI5	<---	Behavioural Intention	0.817
BI4	<---	Behavioural Intention	0.87
BI3	<---	Behavioural Intention	0.754
BI2	<---	Behavioural Intention	0.79
BI1	<---	Behavioural Intention	0.793
PQ5	<---	Perceived Quantity	0.88
PQ1	<---	Perceived Quantity	0.868
PQ2	<---	Perceived Quantity	0.8
PQ3	<---	Perceived Quantity	0.716
PT5	<---	Perceived Trust	0.767
PT2	<---	Perceived Trust	0.741
PT1	<---	Perceived Trust	0.798
PI4	<---	Perceived Image	0.668
PI3	<---	Perceived Image	0.793
PI2	<---	Perceived Image	0.741
PI1	<---	Perceived Image	0.741
PEOU5	<---	Perceived Ease Of Use	0.839
PEOU3	<---	Perceived Ease Of Use	0.779
PEOU1	<---	Perceived Ease Of Use	0.704
PU4	<---	Perceived Usefulness	0.772
PU3	<---	Perceived Usefulness	0.672
PU2	<---	Perceived Usefulness	0.845
SI5	<---	Social Influence	0.879
SI4	<---	Social Influence	0.905
SI3	<---	Social Influence	0.841

UA2	<---	Uncertainty Avoidance	0.863
UA1	<---	Uncertainty Avoidance	0.599
UA3	<---	Uncertainty Avoidance	0.621
RC5	<---	Resistance to Change	0.729
RC4	<---	Resistance to Change	0.844
RC3	<---	Resistance to Change	0.821

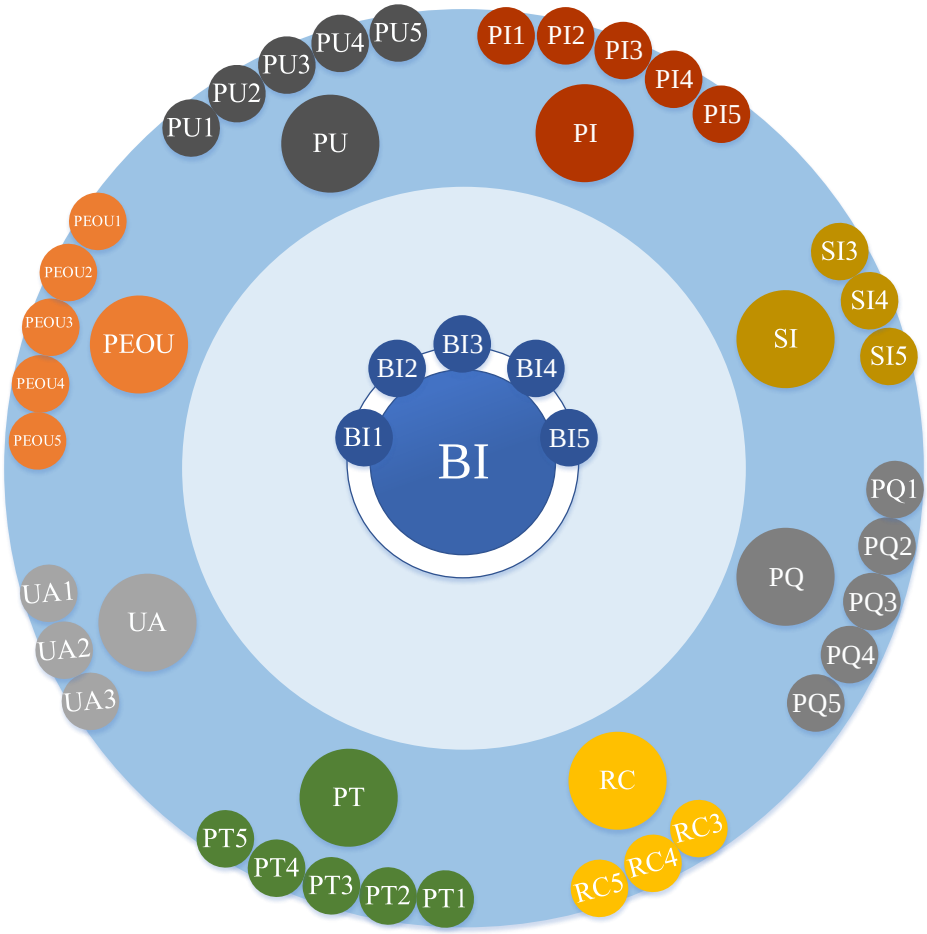


Figure 6.2 Hypothesised Measurement Model

Maximum Likelihood (ML) estimation techniques were used to assess the measurement model through AMOS 20. The main goodness of fit statistics are summarised in Table 6.31. From the results, the *chi* square statistics ($\chi 2$=901.244, df= 397) were significant at $p < .05$, showing goodness of fit, so the proposed model has been supported.

However, it is not sufficient to depend on *chi*-square statistics alone to evaluate the model specification. Therefore, other fit measure such as GFI, RMSEA, CFI, AGFI and NFI were applied for further assessment of the model specification. The findings showed that the value of GFI = 0.942, RMSEA = 0.037, NFI = 0.944, CFI = 0.968 and AGFI = 0.927. These results showed that the fit indices for the hypothesised measurement model are consistent with the recommended values.

Table 6-31 Statistics of Goodness-of-fit

		Criteria	Obtained
Absolute fit measures	*Chi* -square/degree of freedom **(χ2/df)**	1<X2/df<3	2.27
	Goodness of fit index **(GFI)**	≥0.90	0.942
	Root mean square error of approximation **(RMSEA)**	<0.05	0.037
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.944
	Comparative fit index **(CFI)**	≥0.90	0.968
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.927

Moreover, it was clear that the proposed model fit to the data adequately, as other estimation criteria proved. For example, all the standard regression weights were above 0.7, all of the standard residuals were between the threshold levels +2.58 and – 2.58 and the values of critical ratios were more than 1.96. Therefore, the findings established that the proposed model needed no refinement, as it fitted the data adequately and data unidimensionality was confirmed (Hair *et al.,* 2010; Byrne 2013).

6.9.1.2 Construct Reliability and Validity

The next two sections present the results from the assessment of construct validity and reliability.

Construct reliability

Reliability of the measures was examined in this research through evaluating the consistency of the participants' responses to measured items (Byrne, 2013). The internal consistency of the measured items was assessed by Cronbach's *alpha* reliability coefficients. From (table 6.32), reliability coefficient for all of the measured constructs was above 0.81, which is above the recommended criterion (0.7), apart from the uncertainty avoidance construct, which had a reliability of 0.68. From the findings in the literature, the uncertainty avoidance construct has been found to have very low reliability, and does not reach the reliability of 0.70 in national cultural studies, including the original study of Hofstede (Hofstede, 2001; Hofstede, *et al.*, 2010). In addition, any coefficients above the accepted value of 0.60 indicate good reliability (Sekaran, 2013). Moreover, the uncertainty avoidance construct has a reliability value of 0.68, which is just below the recommended cut-off point (0.70). Therefore, the results for construct reliability (Table 6.32) represent high internal consistency and strong reliability in measuring relationships. According to Hair *et al.* (2010), these results also suggest a strong validity for the included construct.

Table 6-32 Constructs' Reliability (Cronbach's *Alpha)*

Construct	Reliability
Behavioural Intention (BI)	0.9
Perceived Quantity (PQ)	0.86
Perceived Trust (PT)	0.86
Perceived Image (PI)	0.82
Perceived Ease Of Use (PEOU)	0.83

Perceived Usefulness (PU)	0.81
Social Influence (SI)	0.91
Uncertainty Avoidance (UA)	0.68
Resistance to Change (RC)	0.84

Construct validity

To assess construct validity, convergent and discriminant validities needed to be examined.

Convergent validity

According to Byrne (2013), the convergent validity of the constructs can be assessed by factor loadings of construct and average variance extracted (AVE), as well as the previously discussed Construct Reliability (CR) estimations. This research followed Byrne's recommendation, and also Hair *et al.*'s (2010) suggestion, regarding the standardised regression loadings' minimum cut off criteria >0.7 and AVE >0.5.

Table 6.33 presents the results of the standardised factor loadings (standard regression weights) that were greater than 0.7, showing the average variance extracted was above 0.5 (Table 6.33). As a result, the constructs included in the proposed model have high convergent validity.

Table 6-33 Constructs Average Variance Extracted (AVE)

Construct	**AVE**
Behavioural Intention (BI)	0.65

Perceived Quantity (PQ)	0.61
Uncertainty Avoidance (UA)	0.56
Perceived Usefulness (PU)	0.58
Resistance to Change (RC)	0.64
Social Influence (SI)	0.77
Perceived Ease Of Use (PEOU)	0.61
Perceived Trust (PT)	0.68
Perceived Image (PI)	0.54

Discriminant validity

The corresponding squared inter-construct correlation (SIC) was compared with the construct's AVE reported in Table 5.30 above to evaluate the model discriminant validity. According to Hair *et al.* (2010), to ensure discriminant validity, SIC estimates need to be less than AVE estimates (Table 6.34).

Table 6-34 Discriminant validity

	PQ	UA	BI	PU	PEOU	RC	SI	PT	PI
PQ	**0.61**								
UA	0.01	**0.56**							
BI	0.15	0.20	**0.65**						
PU	0.14	0.43	0.52	**0.58**					
PEOU	0.15	0.04	0.31	0.33	**0.61**				
RC	0.20	0.26	0.56	0.52	0.39	**0.64**			
SI	0.20	0.06	0.12	0.13	0.11	0.16	**0.77**		
PT	0.17	0.01	0.31	0.28	0.35	0.47	0.11	**0.68**	

PI	0.09	0.46	0.09	0.19	0.08	0.16	0.20	0.10	**0.54**

It has been demonstrated that the model constructs have high discriminant validity, as is clear from the results presented in Table 6.34, which shows that the squared correlation estimates of the nine factors were below their AVE estimates (diagonal bold values). Furthermore, these results can prove that the measurement variables are more associated with their constructs than the other constructs in the model, which shows strong discriminant validity.

In sum, the results from the CFA stage show that the measurement items included in the model provide adequate reliability, discriminant validity and convergent validity. Therefore, the researcher is ready to proceed to the next step: evaluating structural model and testing hypothesis.

6.9.2 Structural Model Evaluation

Table 6.35 shows the seventeen hypotheses that were used in this stage (testing hypothesis), to assess the relationships between the proposed constructs. Proposed constructs can be classified into two groups: endogenous and exogenous. The exogenous ones were Uncertainty Avoidance and Perceived Image while the endogenous ones were Perceived Quantity, Resistance to Change, Perceived Trust, Perceived Ease Of Use, Perceived Usefulness and Behavioural Intention.

Table 6-35 Constructs and Hypotheses

Construct		Hypothesis
Endogenous	(BI) Behavioural Intention	

constructs	(PU) Perceived Usefulness	H1	PU → BI
	(PEOU) Perceived Ease Of Use	H2a	PEOU → BI
		H2b	PEOU → PU
	(PT) Perceived Trust	H3	T → BI
	(RC) Resistance to Change	H4	RC → BI
	(PQ) Perceived Quantity	H5a	PQ → BI
		H5b	PQ → PEOU
		H5c	PQ → RC
	(SI) Social Influence	H6a	SI → BI
		H6b	SI → PU
Exogenous constructs	(PI) Perceived Image	H7	PI → PU
	(UA) Uncertainty Avoidance	H8a	UA → BI
		H8b	UA → SI
		H8c	UA → PEOU
		H8d	UA → RC
		H8e	UA → T
		H8f	UA → PQ

In order to assess the proposed structural model, goodness-of-fit was evaluated besides some parameter estimates. In addition, the calculation of parameter estimates showed that all the hypothesised paths were significant. These results are shown in detail below.

It appears from Table 6.36 and its fit indices that the hypothesized structural model provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the model (GFI = 0.934 and RMSEA = 0.039). Secondly, incremental fit measures were higher than the minimum requirements, indicating a good model fit (NFI = 0.937 and CFI = 0.962). Finally the parsimony fit measure was above the cut-off point of > 0.9 (AGFI =

0.92). Further support for these findings can be seen from the value of $\chi 2$ / df (2.445), which is at acceptable level 1<X2/df<3.

Table 6-36 structural model's GOF

		Criteria	Obtained
Absolute fit measures	*Chi* -square/degree of freedom **($\chi 2$/df)**	1<X2/df<3	2.45
	Goodness of fit index **(GFI)**	≥0.90	0.934
	Root mean square error of approximation **(RMSEA)**	<0.05	0.039
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.937
	Comparative fit index **(CFI)**	≥0.90	0.962
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.92

Coefficient parameter estimates are a significant assessment of a structural model. The structural model's estimated population covariance matrix was produced by parameter estimates. The conceptual model included 9 constructs that were identified by 31 measured items. The conceptual model and its constructs were tested by applying a covariance matrix. In this test and in accordance to Hair *et al.* (2010), a significant parameter coefficient is considered only if the regression weight has *t*-value or CR above 1.96 at the level of .05.

Seventeen causal paths were assessed using CR values and path estimates. At the significance level $p \leq .05$, CR for the seventeen causal path estimates were higher than the critical value (1.96). Table 6.37 shows the parameter estimates, and Figure 6.3 illustrates the overall structural model.

Table 6-37 Construct regression estimates

path	Estimate	S.E.	C.R.	P		
PQ	<---	UA	6.176	1.929	3.202	0.001
SI	<---	UA	5.346	1.67	3.201	0.001
PEOU	<---	UA	6.44	2.008	3.208	0.001
PEOU	<---	PQ	0.084	0.041	2.031	0.042
PU	<---	PI	0.186	0.027	6.814	***
RC	<---	UA	-8.426	2.623	-3.212	0.001
PT	<---	UA	6.298	1.945	3.238	0.001
PU	<---	PEOU	0.424	0.034	12.421	***
RC	<---	PQ	0.145	0.047	3.09	0.002
PU	<---	SI	0.052	0.021	2.472	0.013
BI	<---	RC	-1.108	0.304	-3.641	***
BI	<---	PT	0.284	0.095	2.986	0.003
BI	<---	PEOU	0.266	0.104	2.557	0.011
BI	<---	PU	0.518	0.054	9.66	***
BI	<---	UA	-11.56	5.757	-2.008	0.045
BI	<---	PQ	0.259	0.112	2.305	0.021
BI	<---	SI	0.093	0.035	2.646	0.008

Table 6.37 shows that all of the seventeen proposed paths between dependent and independent latent variables are significant statistically. Four of the proposed paths are significant at p =< 0.001, seven of them are significant at p =< 0.005 While the remaining paths are significant at p =< .05. There was no proposed path that indicated that its t-value had exceeded the required cut-off point for significance. Therefore and statistically, all of the hypothesized paths were significant.

Table 6-38 Results of the tested hypotheses

Hypothesis		Standardized Regression Weights	Results
H1	PU → BI	0.43	supported
H2a	PEOU → BI	0.27	supported
H2b	PEOU → PU	0.52	supported
H3	T → BI	0.31	supported
H4	RC → BI	-0.792	supported
H5a	PQ → BI	0.33	supported
H5b	PQ → PEOU	0.104	supported
H5c	PQ → RC	0.17	supported
H6a	SI → BI	0.13	supported
H6b	SI → PU	0.09	supported
H7	PI → PU	0.25	supported
H8a	UA → BI	-0.848	supported
H8b	UA → SI	0.51	supported
H8c	UA → PEOU	0.81	supported
H8d	UA → RC	-0.98	supported
H8e	UA → T	0.75	supported
H8f	UA → PQ	0.63	supported

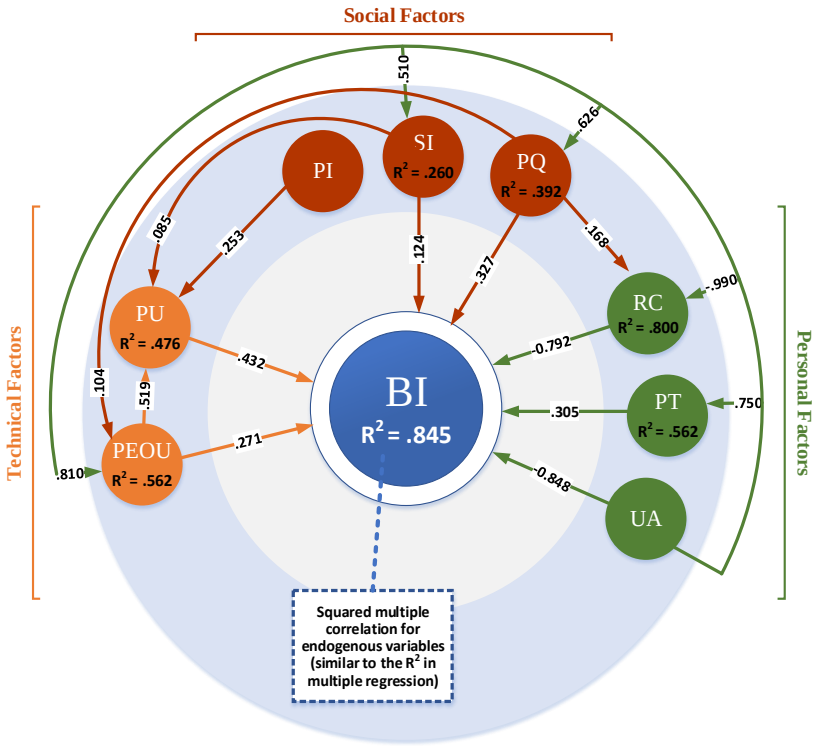


Figure 6.3 Structural model

It is clear from table 6.38 and figure 6.3 that all of the seventeen hypothesised paths in the proposed model were statistically significant and supported. The model constructs and their proposed hypotheses are discussed and explained as follows:

Perceived Usefulness (PU)

H1 (PU → BI): Customer's perceived usefulness has a significant positive impact on his/her behavioural intention to use online banking.

It can be seen from the above tables and from Figure 6.3 that standardized regression weight for PU to BI is 0.43, and CR is 9.66. This result shows that the suggested path

between PU to BI is significant statistically at $p \leq .001$. Therefore, proposed hypothesis H1 is supported strongly. The proposed path shows that behavioural intention to adopt and use online banking is determined strongly and significantly by people's perceptions of the usefulness of online banking services. In practice, if people's perceptions regarding the usefulness of online banking services increase, then their BI towards OB adoption and usage will increase. Furthermore, from the statistical results it can be confirmed that PU is the third most important determinant of people's intentions to use online banking.

Perceived Ease Of Use (PEOU)

H2a (PEOU → BI): Customer's perceived ease of use has a significant positive impact on his/her BI to use OB.

It can be seen from the above tables and Figure 6.3 that CR for PEOU to BI is 2.557 and standardized regression weight is 0.27. This result shows that the suggested path between PEOU to BI is significant at $p \leq .05$. Therefore, proposed hypothesis H2a is supported. The proposed path shows that behavioural intention to adopt and use online banking is determined significantly by people's perceptions regarding online banking's ease of use. In practice, if people's perceptions regarding the ease of use of online banking services increase, then their BI towards OB adoption and usage will increase. Although PEOU has a strong impact on BI, it has less influence than PU on BI.

H2b (PEOU → PU): Customer's perceived ease of use has a significant positive impact on his/her perceived usefulness of OB.

Tables 6.37 and 6.38 and Figure 6.3 show that CR for PEOU to PU is 12.421 and standardized regression weight is 0.52. This result shows that the suggested path between

PEOU to PU is significant at $p \leq .001$. Therefore, the proposed hypothesis H2b is supported strongly. The proposed path shows that PU of OB is determined significantly and strongly by people's perceptions regarding its ease of use. In practice, if people's perceptions regarding the ease of use of online banking services increase, then their perceived usefulness of online banking will increase. Furthermore, from the statistical results, it can be confirmed that, from this study, PEOU is the most important determinant of people's perceived usefulness of OB.

Perceived Trust (PT)

H3 (PT → BI): Customer's PT in online banking site has a significant positive impact on his/her intention to use OB.

It can be seen from the above tables (6.37 and 6.38) and Figure 6.3 that critical ratio for PT to BI is 2.986 and the standardized regression weight is 0.31. These results show that the suggested path between PT to BI is significant at $p \leq .005$. Therefore, proposed hypothesis H3 is supported strongly. The proposed path shows that behavioural intention to adopt and use online banking is determined strongly and significantly by people's PT in online banking services. In practice, if people's trust in online banking services increase, then their BI towards OB acceptance and usage will increase. The results shows that PT is more important and more significant than PEOU in determining BI, but it is less than the importance and the significance of the role of PU.

Resistance to Change

H4 (RC → BI): Resistance to change has a significant negative impact on customer's behavioural intention towards using OB.

The above tables and Figure 6.3 reveal that CR for RC to BI is -3.641 and the standardized regression weight is -0.792. These results show that the suggested path between RC and BI is significant at $p \leq .001$. As a result, the proposed hypothesis H4 is supported strongly. The proposed path shows that behavioural intention to adopt and use online banking is determined strongly and significantly by people's resistance to change their method of banking services. In practice, if people are resistant to change highly, then they will have less BI towards OB acceptance and usage. It can be noted from the results that RC is the second highest determinant of people's intentions to use online banking after UA.

Perceived Quantity (PQ)

H5a (PQ → BI): Perceived Quantity has a significant positive impact on his/her BI to use online banking.

It has been shown in Tables 6.37 and 6.38 and Figure 6.3 that the critical ratio for PQ to BI is 2.305 and standardized regression weight is 0.327. These results show that the suggested path between PQ to BI is significant at $p \leq .05$. Therefore, proposed hypothesis H5a is supported. The proposed path shows that behavioural intention to adopt and use online banking is determined significantly by people's perceptions regarding the quantity of users of online banking services. In practice, if a person's perceived quantity of online banking users increase, then his / her BI towards OB acceptance and usage will increase. The results show that perceived quantity is more important and more significant than PEOU in determining BI, but it is less than the importance and the significance of the role of PU.

H5b (PQ → PEOU): Perceived Quantity has a significant positive impact on his/her perceived online banking's ease of use.

It has been shown in Tables 6.37 and 6.38 and Figure 6.3 that critical ratio for PQ to PEOU is 2.031 and the standardized regression weight is 0.104. These results show that the suggested path between PQ to PEOU is significant at $p \leq .05$. Therefore, proposed hypothesis H5b is supported. The proposed path shows that perceived ease of use of online banking is determined significantly by people's perceptions regarding the quantity of users of online banking services. In practice, if a person's perceived quantity of OB users increase, then his / her perception regarding the ease of use of OB will increase. In addition to the impact of PQ on PEOU, it has an indirect impact on BI through PEOU.

H5c (PQ → RC): Perceived Quantity has a significant negative impact on his/her resistance to change towards OB services.

Tables 6.37 and 6.38 and Figure 6.3 show that critical ratio for PQ to RC is 3.09 and standardized regression weight is 0.17. These results show that the suggested path between PQ to RC is significant at $p \leq .005$. Therefore, proposed hypothesis H5c is supported. The path shows that resistance to change is determined significantly by people's perceptions regarding the quantity of users of online banking services. In practice, if a person's perceived quantity of online banking users increase, then his / her resistance to change towards using online banking will be more. In addition to its direct impact on BI, PQ has an indirect impact on BI through RC, besides its indirect impact through PEOU. This relationship will be explained more in Chapter seven.

Social Influence

H6a (SI → BI): Social influence has a significant positive impact on his/her behavioural intention to use OB.

It can be seen from the above tables and Figure 6.3 that critical ratio for SI to BI is 2.646 and standardized regression weight is 0.124. These results confirm that the suggested path between SI to BI is significant at $p \leq .05$ and proposed hypothesis H6a is supported. Therefore, behavioural intention to adopt and use online banking is determined significantly by social influence. In practice, the positive impact of people around a person regarding the use of online banking services will increase his / her intention to use online banking. The model confirms that SI has the lowest impact on BI.

H6b (SI → PU) Social influence has a significant positive impact on his/her perceived usefulness of OB.

Tables 6.37 and 6.38 and Figure 6.3 show that critical ratio for SI to PU is 2.472 and the standardized regression weight is 0.085, which confirms that the suggested path between SI to PU is significant at $p \leq .05$ and proposed hypothesis H6b is supported. Therefore, perceived online banking usefulness is determined significantly by social influence. In practice, the positive impact of people around a person regarding the use of online banking services will improve his / her perception regarding the usefulness of OB. SI has the lowest impact on PU among PEOU and PI.

Perceived Image (PI)

H7 (PI → PU): PI has a significant positive impact on PU.

The above tables and Figure 6.3 reveal that critical ratio for PI to PU is 6.814 and standardized regression weight is 0.253. These results show that the suggested path between PI and PU is significant at $p \leq .001$. As a result, proposed hypothesis H7 is

supported strongly. The proposed path shows that perceived online banking usefulness is determined strongly and significantly by a person's PI regarding himself / herself using online banking. In practice, as a person's PI regarding himself / herself using online banking is a positive, he / she will have a more perceived usefulness of OB. PI has less impact on PU than PEOU and more impact than SI.

Uncertainty Avoidance

H8a (UA →BI): uncertainty avoidance has a significant negative impact on behavioural intention to use online banking.

It can be seen from the above tables and Figure 6.3 that critical ratio for UA to BI is -2.008 and standardized regression weight is -0.848. This result shows that the suggested path between UA to BI is significant at $p \leq .05$. Therefore, proposed hypothesis H8a is supported. The proposed path shows that behavioural intention to adopt and use online banking is determined significantly by the level of uncertainty avoidance. In practice, when uncertainty avoidance is high, BI towards OB adoption and usage will be low.

H8b (UA → SI): uncertainty avoidance has a significant positive impact on social influence.

The tables above and Figure 6.3 show that critical ratio for UA to SI is 3.201and standardized regression weight is 0.51, which suggests that the path between UA to SI is significant at $p \leq .005$. Therefore, proposed hypothesis H8b is supported. The proposed path shows that social influence is determined significantly by the level of uncertainty avoidance. In practice, when uncertainty avoidance is high, social influence will be high.

H8c (UA → PEOU): uncertainty avoidance has a significant negative impact on perceived ease of use.

It can be seen from the above tables and Figure 6.3 that critical ratio for UA to PEOU is 3.208 and the standardized regression weight is 0.81. This result shows that the suggested path between UA to PEOU is significant at $p \leq .001$. Therefore, proposed hypothesis H8c is supported. The proposed path shows that PEOU is determined significantly by the level of uncertainty avoidance. In practice, increasing the level of uncertainty avoidance for a person makes him / her feel that online banking is an easy service to use. This relationship will be explained further in Chapter seven.

H8d (UA → RC): uncertainty avoidance has a significant positive impact on resistance to change.

The tables above and Figure 6.3 show that critical ratio for UA to RC is -3.212 and standardized regression weight is -0.985, which suggests that the path between UA to RC is significant at $p \leq .005$. Therefore, proposed hypothesis H8d is supported. The proposed path shows that RC is determined significantly by the level of uncertainty avoidance. In practice, when a person has a high level of uncertainty avoidance, his / her resistance to change towards online banking is low. This relationship needs to be further discussed and explained in Chapter seven.

H8e (UA → PT): uncertainty avoidance has a significant negative impact on PT.

It can be seen from the above tables and Figure 6.3 that critical ratio for UA to PT is 3.238 and standardized regression weight is 0.75. This result shows that suggested path between UA to PT is significant at $p \leq .005$. Therefore, proposed hypothesis H8e is supported. The

proposed path shows that PT in online banking is determined significantly by the level of uncertainty avoidance. In practice, when a person has high uncertainty avoidance, he / she will have greater trust in the online banking organisation. This relationship needs to be discussed and explained further in Chapter seven.

H8f (UA → PQ): uncertainty avoidance has a significant positive impact on perceived quantity.

The tables above and Figure 6.3 show that critical ratio for UA to PQ is 3.202 and standardized regression weight is 0.626, which suggests that path between UA to PQ is significant at $p \leq .005$. Therefore, proposed hypothesis H8f is supported. The proposed path shows that perceived quantity of online banking users is determined significantly by the level of uncertainty avoidance. In practice, when uncertainty avoidance is high, users PQ in online banking will be high. Next section will investigate further the role of demographic factors in the conceptual model.

6.10 Impact of demographic factors.

To investigate the impact of demographic variables on OB acceptance, categories of respondent's age, gender and education were analysed by ANOVA and by *post hoc* means' comparison (scheffe's test), when required.

6.10.1 Gender

The differences between male and female in response to the questions were investigated and presented in the table 6.39. It was clear that there are statistical significant differences between male and female regarding their intention to use OB, their perceptions about the OB usefulness and ease of use, resistance to change, perceived trust and perceived quantity of OB users. While there are no significant differences in uncertainty avoidance, social influence and perceived image.

The results show that males are more willing to use OB than female which is explained by their perceived usefulness and ease of use of OB as they think that OB is a useful technology and it is easy to be used more than what female think. In addition, male are less resistance to change and have more trust in their banks besides their extra believe about the amount of people around them using OB. These results show a significant differences between male and female regarding their acceptance and usage of OB in general.

Table 6-39 Gender comparison

Group Statistics (Gender)					
	Gender	Mean	Std. Deviation	t	Sig. (p-value)
UA	Male	3.8	0.61966	-1.165-	0.244
	Female	3.848	0.5414		
BI	Male	4.635	0.53313	5.404	0
	Female	4.413	0.69202		
PU	Male	4.634	0.50385	4.913	0
	Female	4.443	0.65478		
PEOU	Male	4.18	0.65237	2.726	0.007
	Female	4.048	0.76628		
SI	Male	3.876	0.83125	1.114	0.265
	Female	3.811	0.8464		
RC	Male	1.462	0.66786	4.787	0
	Female	1.529	0.75983		
PT	Male	3.959	0.73281	4.517	0
	Female	3.718	0.82669		
PQ	Male	3.652	0.77058	3.726	0
	Female	3.441	0.89322		
PI	Male	3.933	0.74179	1.102	0.271
	Female	3.875	0.79332		

Moderating impact of gender

Although this research has not hypothesized gender to moderate relationships in the conceptual model, this research found very highly significant differences between genders. Therefore, gender will be investigated as a moderator for further explanation for people behaviour regarding OB usage. This section will present the moderating impact of gender on the proposed and tested relationships between the constructs in the conceptual model and behavioural intention through conducting multiple group analysis in SEM for male and female sub groups.

The descriptive analysis shows that the total accepted responses were 945, 646 of which were male while the reset (299) were female. The model was run twice: one for the male group and one for the female group.

Male model

It appears from Table 6.40 and its fit indices that the hypothesized structural model for male group provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the male model (GFI = 0.921 and RMSEA = 0.034). Secondly, incremental fit measures were higher than the minimum requirements, indicating a good model fit (NFI = 0.908 and CFI = 0.941). Finally the parsimony fit measure was just above the cut-off point of > 0.9 (AGFI = 0.907). Further support for these findings can be seen from the value of $\chi 2$ / df (2.097), which is at acceptable level $1<X2/df<3$.

Table 6-40 structural model's GOF for Male group

		Criteria	Obtained
Absolute fit measures	*Chi*-square/degree of freedom **(χ2/df)**	1<X2/df<3	2.097
	Goodness of fit index **(GFI)**	≥0.90	0.921
	Root mean square error of approximation **(RMSEA)**	<0.05	0.034
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.908
	Comparative fit index **(CFI)**	≥0.90	0.907
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.917

Female model

It appears from Table 6.41 and its fit indices that the hypothesized structural model for female group provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the female model (GFI = 0.912 and RMSEA = 0.036). Secondly, incremental fit measures were indicating a good model fit (NFI = 0.898 (just below the recommended level) and CFI = 0.946). Finally the parsimony fit measure was above the cut-off point of > 0.9 (AGFI = 0.917). Further support for these findings can be seen from the value of χ2 / df (2.138), which is at acceptable level 1<X2/df<3.

Table 6-41 structural model's GOF for Female group

		Criteria	Obtained
Absolute fit measures	*Chi*-square/degree of freedom **(χ2/df)**	1<X2/df<3	2.138
	Goodness of fit index **(GFI)**	≥0.90	0.912
	Root mean square error of approximation **(RMSEA)**	<0.05	0.036
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.898
	Comparative fit index **(CFI)**	≥0.90	0.946
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.917

Table 6.42 present the findings from multi group analysis which shows the moderation role of gender on RC to BI, PEOU to BI and PU to BI. The impact of resistance to change and Uncertainty avoidance on behavioural intention are stronger for female while the

impact of perceived ease of use on behavioural intention is stronger for male. The results show that the female model can explain 78.2 percent of the behavioural intention while the male model can explain 65.3 percent of the behavioural intention. Both of male and female models show a good model fit to the data and the female model shows more ability to explain the behavioural intention.

Table 6-42 summary of the moderating effect of gender

			Male		Female		z-score
			Squared Multiple Correlation (R2)	Estimate	Squared Multiple Correlation (R2)	Estimate	
BI	<--	RC	65.30%	-0.561	78.20%	-0.849	1.267**
BI	<--	PT		0.176		0.296	0.61
BI	<--	PEOU		0.192		0.303	0.501**
BI	<--	PU		0.64		0.331	-2.779***
BI	<--	PQ		0.095		0.602	1.078
BI	<--	SI		0.039		0.169	1.376
BI	<--	UA		-0.744		-0.943	0.897
Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10							

6.10.2 Age

Age were classified into 6 categories; the first group was less than 20 years old, the second group was from 20 to less than 30 years, the third group was from 30 to less than 40 years, the fourth group was from 40 to less than 50, the fifth one was from 50 to less than 60 while the sixth group was 60 and older. The differences between respondents' age categories were investigated and presented in the table 6.43.

The older group was the highest in avoiding uncertainty while the younger group was the lowest in avoiding uncertainty. The highest intention to use OB was within the third group while the lowest intention was within the youngest group with no significant differences. The results show a significant differences between age groups regarding perceived usefulness as the highest group was the fourth one while the lowest was the first one.

Similarly, PEOU ranked high by the forth group and low by the first one. The results show that the third group influenced by social more than the others while the first group is the lowest one. It was clear from the results that the younger people have the lowest resistance to change while the fourth group has the highest resistance to change. Similarly, younger people have the lowest trust to their banks while the fourth group has the highest level of trust. Results revealed that elder people are the lowest among the age groups in perceiving people around them using OB while the fourth group is the highest. Similarly, results showed that elder people are the lowest among the age groups in perceiving the image of OB users while the fourth group is the highest.

Table 6-43 Age comparison

	age	Mean	Std. Deviation	t	Sig. (p-value)
UA	less than 20	3.75	0.74683	1.5	0.186
	from 20 to less than 30	3.8	0.58048		
	from 30 to less than 40	3.78	0.59423		
	from 40 to less than 50	3.89	0.62954		
	from 50 to less than 60	3.97	0.48012		
	60 and more	4.11	0.3849		
BI	less than 20	4.26	0.66997	2.01	0.075
	from 20 to less than 30	4.52	0.59473		
	from 30 to less than 40	4.61	0.5827		
	from 40 to less than 50	4.6	0.61205		
	from 50 to less than 60	4.6	0.58353		
	60 and more	4.53	0.80829		
PU	less than 20	4.23	0.6547	3.59	0.003
	from 20 to less than 30	4.52	0.59998		
	from 30 to less than 40	4.61	0.51201		
	from 40 to less than 50	4.66	0.55012		
	from 50 to less than 60	4.54	0.59235		
	60 and more	4.67	0.57735		
PEOU	less than 20	3.88	0.6483	2.97	0.012
	from 20 to less than 30	4.06	0.73623		
	from 30 to less than 40	4.19	0.65501		
	from 40 to less than 50	4.24	0.66136		
	from 50 to less than 60	4.07	0.72765		
	60 and more	3.89	0.50918		
SI	less than 20	3.71	0.81218	1.24	0.289
	from 20 to less than 30	3.79	0.84901		
	from 30 to less than 40	3.92	0.86354		
	from 40 to less than 50	3.9	0.76323		
	from 50 to less than 60	3.76	0.73891		
	60 and more	4	1		
RC	less than 20	1.43	0.64354	3.65	0.003
	from 20 to less than 30	1.53	0.77867		
	from 30 to less than 40	1.55	0.67697		
	from 40 to less than 50	1.74	0.60327		
	from 50 to less than 60	1.54	0.6121		
	60 and more	1.71	0.96225		
PT	less than 20	3.54	0.60083	2.84	0.015
	from 20 to less than 30	3.85	0.82415		
	from 30 to less than 40	3.86	0.76223		
	from 40 to less than 50	4.04	0.6971		
	from 50 to less than 60	3.96	0.6852		
	60 and more	3.44	0.50918		
PQ	less than 20	3.23	0.84246	3.67	0.003
	from 20 to less than 30	3.47	0.8769		
	from 30 to less than 40	3.67	0.80499		
	from 40 to less than 50	3.69	0.71968		
	from 50 to less than 60	3.56	0.56183		
	60 and more	3.17	1.01036		
PI	less than 20	3.88	0.49926	1.06	0.379
	from 20 to less than 30	3.94	0.79532		
	from 30 to less than 40	3.87	0.77441		
	from 40 to less than 50	3.98	0.69058		
	from 50 to less than 60	3.88	0.61991		
	60 and more	3.33	1.25831		

It was clear that there are statistical significant differences between respondents' age categories regarding their perceptions about the OB usefulness and ease of use, resistance to change, perceived trust and perceived quantity of OB users. While there are no significant differences in uncertainty avoidance, behavioural intention, social influence and perceived image. Therefore, *post hoc* means' comparison (scheffe's test) is required to investigate the statistical differences between the age groups in their impact on PU, PEOU, RC, PT and PQ.

Table 6-44 PU & Age - *post hoc'* comparison (scheffe's test)

PU - Age	**1**	**2**	**3**	**4**	**5**	**6**
less than 20 (1)	---					
from 20 to less than 30 (2)	0.2837	---				
from 30 to less than 40 (3)	0.38	0.0963	---			
from 40 to less than 50 (4)	.42486*	0.1412	0.0449	---		
from 50 to less than 60 (5)	0.312	0.0283	0.068	0.1129	---	
60 and more (6)	0.4348	0.1511	0.0548	0.0099	0.12281	---

By doing the scheffe's *post hoc* comparison between age groups and PU, it was clear that there is a clear significant difference between age group 1 (less than 20) and age group 4 (from 40 to less than 50) regarding their perceived usefulness of OB.

Table 6-45 PEOU & Age - *post hoc'* comparison (scheffe's test)

PEOU - Age	**1**	**2**	**3**	**4**	**5**	**6**
less than 20 (1)	---					
from 20 to less than 30 (2)	0.1715	---				
from 30 to less than 40 (3)	0.3073	0.1358	---			
from 40 to less than 50 (4)	0.358	0.1865	0.0507	---		
from 50 to less than 60 (5)	0.1861	0.0146	0.1212	0.1719	---	
60 and more (6)	0.0048	0.1667	0.3025	0.3532	0.18129	---

By doing the scheffe's *post hoc* comparison between age groups and PEOU, it was clear that there is no clear significant difference between age groups regarding their perceived ease of use of OB.

Table 6-46 RC & Age - *post hoc'* comparison (scheffe's test)

RC - Age	**1**	**2**	**3**	**4**	**5**	**6**
less than 20 (1)	---					
from 20 to less than 30 (2)	0.3138	---				
from 30 to less than 40 (3)	0.4214	0.1075	---			
from 40 to less than 50 (4)	.52579*	0.212	0.1044	---		
from 50 to less than 60 (5)	0.3597	0.0458	0.0617	0.1661	---	
60 and more (6)	0.4444	0.1306	0.0231	0.0814	0.0848	---

By doing the scheffe's *post hoc* comparison between age groups and RC, it was clear that there is a significant difference between age group 1 (less than 20) and age group 4 (from 40 to less than 50) regarding their resistance to change.

Table 6-47 PT & Age - *post hoc'* comparison (scheffe's test)

PT - Age	**1**	**2**	**3**	**4**	**5**	**6**
less than 20 (1)	---					
from 20 to less than 30 (2)	0.3147	---				
from 30 to less than 40 (3)	0.3218	0.0072	---			
from 40 to less than 50 (4)	0.5054	0.1908	0.1836	---		
from 50 to less than 60 (5)	0.4199	0.1053	0.0981	0.0855	---	
60 and more (6)	0.0918	0.4064	0.4136	0.5972	0.5117	---

By doing the scheffe's *post hoc* comparison between age groups and PT, it was clear that there is no clear significant difference between age groups regarding their trust of banks and OB.

Table 6-48 PQ & Age - *post hoc'* comparison (scheffe's test)

PQ - Age	1	2	3	4	5	6
less than 20 (1)	---					
from 20 to less than 30 (2)	0.2462	---				
from 30 to less than 40 (3)	0.4389	0.1927	---			
from 40 to less than 50 (4)	0.4637	0.2176	0.0249	---		
from 50 to less than 60 (5)	0.331	0.0848	0.1079	0.1328	---	
60 and more (6)	0.0616	0.3078	0.5005	0.5253	0.39254	---

By doing the scheffe's *post hoc* comparison between age groups and PQ, it was clear that there is no clear significant difference between age groups regarding their perceived quantity of people around them using OB.

Moderating impact of age

Although this research has not hypothesized age to moderate relationships in the conceptual model, this research found very highly significant differences between age groups. Therefore, age will be investigated as a moderator for further explanation for people behaviour regarding OB usage. This section will present the moderating impact of age on the proposed and tested relationships between the constructs in the conceptual model and behavioural intention through conducting multiple group analysis in SEM for two age groups: 365 participants ≤ 30 years old (younger group) and 209 participants ≥ 40 years old (older group). The model was run twice: one for the younger group and one for the older group.

Younger group model

It appears from Table 6.49 and its fit indices that the hypothesized structural model for younger group provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the male model (GFI = 0.91 and RMSEA = 0.032). Secondly, incremental fit measures were indicating a good model fit (NFI = 0.859 (just below the cut-off point) and CFI = 0.938). Finally the parsimony fit measure was just below the cut-off point of > 0.9 (AGFI = 0.892). Further support for these findings can be seen from the value of $\chi 2$ / df (1.694), which is at good level 1<X2/df<3.

Table 6-49 structural model's GOF for younger group

		Criteria	Obtained
Absolute fit measures	*Chi*-square/degree of freedom **($\chi 2$/df)**	1<X2/df<3	1.694
	Goodness of fit index **(GFI)**	≥0.90	0.91
	Root mean square error of approximation **(RMSEA)**	<0.05	0.032
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.895
	Comparative fit index **(CFI)**	≥0.90	0.938
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.892

Older group model

It appears from Table 6.50 and its fit indices that the hypothesized structural model for older group provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the older group model (GFI = 0.901 and RMSEA = 0.039). Secondly, incremental fit measures were higher than the minimum requirements, indicating a good model fit (NFI = 0.915 and CFI = 0.917). Finally the parsimony fit measure was just below the cut-off point of > 0.9 (AGFI = 0.881). Further support for these findings can be seen from the value of $\chi 2$ / df (1.984), which is at good level 1<X2/df<3.

Table 6-50 structural model's GOF for older group

		Criteria	Obtained
Absolute fit measures	*Chi*-square/degree of freedom **(χ2/df)**	1<X2/df<3	1.984
	Goodness of fit index **(GFI)**	≥0.90	0.901
	Root mean square error of approximation **(RMSEA)**	<0.05	0.039
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.915
	Comparative fit index **(CFI)**	≥0.90	0.917
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.881

Table 6.51 present the findings from multi group analysis which shows the moderation role of age on PT to BI and SI to BI. From the table it can be seen that the impact of perceived trust and social influence on behavioural intention are stronger for younger group. The results show that the younger group model can explain 71.2 percent of the behavioural intention while the older group model can explain 56.5 percent of the behavioural intention. Both of older and younger group models show a good model fit to the data and the younger group model shows more ability to explain the behavioural intention.

Table 6-51 summary of the moderating effect of age

			Younger		Older		z-score
			Squared Multiple Correlation (R2)	Estimate	Squared Multiple Correlation (R2)	Estimate	
BI	<--	RC	0.712	-0.433	0.565	-0.249	-1.538
BI	<--	PT		0.661		0.042	-2.145**
BI	<--	PEOU		0.509		0.085	-1.624
BI	<--	PU		0.376		0.513	1.049
BI	<--	PQ		0.692		-0.057	-1.437
BI	<--	SI		0.197		0.007	-2.037**
BI	<--	UA		-0.587		0.602	1.190

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

6.10.3 Education

Education level were classified into 5 categories; the first group was high school & below, the second group was diploma, the third group was bachelor, the fourth group was higher education, the fifth one was other educational level that has not been listed. The differences between respondents' education level were investigated and presented in the table 6-52.

The second group was the highest in avoiding uncertainty while the fifth group was the lowest in avoiding uncertainty with no significant differences between them. The highest intention to use OB was within the higher education group while the lowest intention was within the group that has the lowest education level with significant differences between groups. The results show no significant differences between groups regarding perceived usefulness as the highest group was the higher education group while the lowest was the first group. Similarly, PEOU ranked high by the higher education group and low by the first one. The results show that the people with diploma qualification influenced by social more than the others while the group classify them having other qualification is the lowest one. It was clear from the results that the higher education group have the lowest resistance to change while the group classify them having other qualification has the highest resistance to change followed by the lowest educational group. Similarly, the lowest education people have the lowest trust to their banks while the higher education group has the highest level of trust. Results revealed that higher education people are the highest among groups in perceiving people around them using OB while the lowest education group is the highest. In addition, results showed that the group classify them having other qualification are the lowest among the groups in perceiving the image of OB users while the bachelor holders is the highest.

Table 6-52 Education comparison

	Education	Mean	Std. Deviation	t	Sig. (p-value)
UA	high school & below	3.85	0.64333	1.21	0.306
	diploma	3.87	0.56135		
	bachelor	3.81	0.59017		
	higher education	3.81	0.59921		
	other	3.33	0.69921		
BI	high school & below	4.36	0.62292	7.81	0
	diploma	4.5	0.55176		
	bachelor	4.54	0.64621		
	higher education	4.69	0.48618		
	other	4	0.8		
PU	high school & below	4.46	0.58749	1.87	0.114
	diploma	4.6	0.49618		
	bachelor	4.56	0.60791		
	higher education	4.62	0.49479		
	other	4.28	0.64693		
PEOU	high school & below	3.97	0.69199	1.82	0.123
	diploma	4.13	0.67208		
	bachelor	4.14	0.72081		
	higher education	4.18	0.64126		
	other	3.78	1.12875		
SI	high school & below	3.75	0.76834	0.91	0.456
	diploma	3.94	0.79511		
	bachelor	3.85	0.83024		
	higher education	3.87	0.86013		
	other	3.44	1.36083		
RC	high school & below	1.59	0.79768	3.12	0.015
	diploma	1.56	0.64871		
	bachelor	1.51	0.72498		
	higher education	1.44	0.64451		
	other	1.62	1.26491		
PT	high school & below	3.72	0.78993	1.31	0.265
	diploma	3.8	0.80099		
	bachelor	3.9	0.79922		
	higher education	3.92	0.69323		
	other	3.89	1.55873		
PQ	high school & below	3.31	0.78914	3.66	0.006
	diploma	3.6	0.83598		
	bachelor	3.57	0.84556		
	higher education	3.68	0.74782		
	other	3.33	1.33853		
PI	high school & below	3.84	0.69747	2.46	0.044
	diploma	3.91	0.77244		
	bachelor	3.99	0.77312		
	higher education	3.84	0.73528		
	other	3.5	1.01242		

It was clear that there are statistical significant differences between respondents' education level regarding their behavioural intention to use OB, resistance to change, perceived quantity and perceived image of OB users. While there are no significant differences in perceived ease of use, perceived usefulness, uncertainty avoidance, social influence and perceived trust. Therefore, *post hoc* means' comparison (scheffe's test) is required to investigate the differences between the respondents' education level in their impact on BI, RC, PI and PQ.

Table 6-53 BI & education - post hoc' comparison (scheffe's test)

BI - Education	**1**	**2**	**3**	**4**	**5**
High school & below	---				
Diploma	0.1417	---			
Bachelor	0.1792	0.0375	---		
Higher education	.33177*	0.1901	.15257*	---	
Other	0.3558	0.4976	0.5351	0.6876	---

scheffe's *post hoc* comparison between education level and BI show that there is a clear significant difference between education level 1 (High school & below) and education level 4 (Higher education) and between education level 4 and education level 3 regarding their behavioural intention to use OB.

Table 6-54 RC & education - post hoc' comparison (scheffe's test)

RC - Education	**1**	**2**	**3**	**4**	**5**
High school & below	---				
Diploma	0.2138	---			
Bachelor	0.2312	0.0174	---		
Higher education	.29062*	0.0768	0.0594	---	
Other	0.1602	0.374	0.3914	0.4508	---

scheffe's *post hoc* comparison between education level and RC show that there is a clear significant difference between education level 1 (High school & below) and education level 4 (Higher education) regarding their resistance to change.

Table 6-55 PQ & education - post hoc' comparison (scheffe's test)

PQ - Education	**1**	**2**	**3**	**4**	**5**
High school & below	---				
Diploma	0.2954	---			
Bachelor	0.2604	0.035	---		
Higher education	.37814*	0.0827	0.1177	---	
Other	0.0281	0.2673	0.2323	0.35	---

scheffe's *post hoc* comparison between education level and PQ show also a clear significant difference between education level 1 (High school & below) and education level 4 (Higher education) regarding their perceived quantity of OB users around them.

Table 6-56 PI & education - post hoc' comparison (scheffe's test)

PI - Education	**1**	**2**	**3**	**4**	**5**
High school & below	---				
Diploma	0.0678	---			
Bachelor	0.1478	0.08	---		
Higher education	0.0012	0.0666	0.1466	---	
Other	0.3377	0.4055	0.4855	0.3389	---

scheffe's *post hoc* comparison between education level and PI shows no clear significant difference between the education levels regarding their perceived image.

Moderating impact of education

Although this research has not hypothesized education to moderate relationships in the conceptual model, this research found very highly significant differences between educational categories. Therefore, education will be investigated as a moderator for further explanation for people behaviour regarding OB usage. This section will present the moderating impact of educational level on the proposed and tested relationships between the constructs in the conceptual model and behavioural intention through conducting multiple group analysis in SEM for two education categories: 624 undergraduate participants and 315 postgraduate participants. The model was run twice: one for the postgraduate group and one for the undergraduates group.

Undergraduate's **model**

It appears from Table 6.57 and its fit indices that the hypothesized structural model for undergraduates group provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the male model (GFI = 0.91 and RMSEA = 0.034). Secondly, incremental fit measures were indicating a good model fit (NFI = 0.911 and CFI = 0.939). Finally the parsimony fit measure was just below the cut-off point of > 0.9 (AGFI = 0.896). Further support for these findings can be seen from the value of $\chi 2$ / df (2.128), which is at good level 1<X2/df<3.

Table 6-57 structural model's GOF for undergraduate group

		Criteria	Obtained
Absolute fit measures	*Chi*-square/degree of freedom **(χ2/df)**	1<X2/df<3	2.128
	Goodness of fit index **(GFI)**	≥0.90	0.91
	Root mean square error of approximation **(RMSEA)**	<0.05	0.034
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	911
	Comparative fit index **(CFI)**	≥0.90	0.939
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.896

Postgraduate group model

It appears from Table 6.58 and its fit indices that the hypothesized structural model for older group provides a good fit to the observed data. Firstly, absolute fit measures shows a good fit to the older group model (GFI = 0.926 and RMSEA = 0.038). Secondly, incremental fit measures were indicating a good model fit (NFI = 0.898 and CFI = 0.917). Finally the parsimony fit measure was above the cut-off point of > 0.9 (AGFI = 0.922). Further support for these findings can be seen from the value of χ2 / df (2.302), which is at good level 1<X2/df<3.

Table 6-58 structural model's GOF for postgraduate group

		Criteria	Obtained
Absolute fit measures	*Chi*-square/degree of freedom **(χ2/df)**	1<X2/df<3	2.302
	Goodness of fit index **(GFI)**	≥0.90	0.926
	Root mean square error of approximation **(RMSEA)**	<0.05	0.038
Incremental fit measures	Normated fit index **(NFI)**	≥0.90	0.898
	Comparative fit index **(CFI)**	≥0.90	0.917
Parsimony fit measure	Adjusted goodness of fit index **(AGFI)**	≥0.90	0.922

Table 6.59 present the findings from multi group analysis which shows the moderation role of education on the relationships in the conceptual model. Although there are some

differences between the educational categories (ANOVA & post hoc test), education does not appear as a moderator for the conceptual model's relationships. The results show that the undergraduate model can explain 69.3 percent of the behavioural intention while the postgraduate model can explain 80.1 percent of the behavioural intention. While both models show a good model fit to the date, the postgraduate model shows more ability to explain the behavioural intention.

Table 6-59 summary of the moderating effect of age

			undergraduate		postgraduate		
			Squared Multiple Correlation (R2)	Estimate	Squared Multiple Correlation (R2)	Estimate	
BI	<--	RC	0.693	-0.913	0.801	-0.753	-0.074
BI	<--	PT		0.179		0.283	0.607
BI	<--	PEOU		0.126		0.415	1.255
BI	<--	PU		0.462		0.605	1.246
BI	<--	PQ		0.151		0.329	0.759
BI	<--	SI		0.087		0.052	-0.529
BI	<--	UA		-0.721		-0.663	-0.471

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

6.11 Conclusions

The research results are presented in this chapter. In order for the researcher to deal with data issues such as normality, outliers and missing values, and in order to screen the data, numerous statistical methods were used. Screening data was essential before SEM, as SEM is extremely sensitive to those issues. In order to deal with the missing data, this research applied the three-step technique recommended by Byrne (2013). There is a very

low level of missing values completely at random which was dealt with by adopting a mechanism of regression imputation as suggested by Hair *et al.* (2010) and Kline (2013). Furthermore, outliers were identified using the Mahalanobis distance (D2). The data have very few outlier cases, and they were retained, as suggested by Hair *et al.* (2010), as there was no evidence that the outlier cases were not part of the population.

EFA was calculated using SPSS 20 and adopting the principal component analysis as well as the varimax rotation with orthogonal model. Because of high cross loading on another constructs, six items were deleted. SEM was adopted to test structural and measurement model using AMOS 20.0. Three stages were performed to complete SEM analysis. The first stage was measurement model fit assessment. The result shows significant *chi*-square statistics ($\chi 2$=901.244, df= 397) at p<0.05, demonstrating an accepted model fitting the data. However, it is not sufficient relying on *chi*-square only in order to assess the model specifications. Therefore, further indices of fit, namely CFI, AGFI, GFI, RMSEA, and NFI, were employed for further assessment of the model specification. The results indicated that the value of GFI was 0.942, RMSEA 0.037, NFI 0.944, CFI 0.968 and AGFI 0.927. These results indicated further consistency with the recommended fit value indices.

Subsequently, the proposed constructs were assessed for validity and reliability. It was clear from the analysis that the model has reliable factors with good discriminant and convergent validity. Subsequently, the model become ready to assess the relationships between its factors. Seventeen hypotheses were used to assess the relations between the factors of the model. Measures of fit showed that the proposed model produced a good fit

to the collected and analysed data. All of the seventeen model paths were supported as significant.

Seventeen causal paths to BI were examined through the CR values and path estimates. For all of them and at a significant level of $p \leq .05$, estimated *t*-values were higher than the critical value (1.96). Therefore, the proposed hypotheses were supported. A discussion of the above findings is presented in the next chapter

Chapter Seven Findings and Discussion

7.1 Introduction and Overview

It has been seen in Chapter two, how the literature shows the need for a model explaining the factors affecting user's adoption and usage of OB, especially within the national cultural context of developing countries such as Saudi Arabia. Banks and related government authorities in Saudi Arabia have made great progress towards improving their e-services; however, these efforts came with a lack of theoretical background. This research has explored these concerns with the aim of providing a better understanding of people's acceptance and adoption of technology in the context of OB in Saudi Arabia. This chapter discusses the findings from Chapter six (Data Analysis) and links these findings with the existing literature as discussed in Chapters two and four. It starts with providing an overview of the research objectives, followed by discussion of the key findings from Chapter six, including the descriptive findings and the hypothesis analysis.

This research aimed to determine the most important constructs that influence people's intention to adopt and use of technology within the national cultural context of Saudi Arabia. This study established and assessed a new proposed conceptual model for to understand people's intention to adopt and use OB and the related influential factors. After conducting a qualitative study, the research incorporated several constructs from other models and theories used the technology adoption field, as is detailed in the next paragraph.

To achieve the research objectives and goals, and to arrive at the most appropriate model, the related existing studies were carefully reviewed. Numerous models, theories and relevant research papers were discussed, compared and reviewed. The literature suggested

various factors as determinants of people's adoption of technology, and OB specifically. This study therefore employed a qualitative approach to arrive at the salient factors that could help achieve the research aims and objectives. Focus groups and interviews were used in the qualitative stage of this study. A conceptual model was proposed to explore the main factors impacting people's adoption of technology in the context of Saudi OB. The conceptual model included eight factors affecting BI to use OB, and demographic variables (gender, age, education level) as exploratory factors. All the constructs that were combined in the proposed model had been previously identified in prior research, except for perceived quantity which was introduced for the first time, to the best of the researcher's knowledge.

As described in the theoretical framework chapter (Chapter 4), the study's proposed model assumed that users' BI to accept and use OB is affected by their beliefs. Some of those beliefs are hypothesised to affect BI only directly, such as Perceived Usefulness (PU), Resistance to Change (RC) and Perceived Trust (PT), while some of the beliefs are hypothesised to affect BI directly and indirectly, such as Perceived Ease Of Use (PEOU), Social Influence (SI), Perceived Quantity (PQ) and Uncertainty Avoidance (UA); Perceived Image (PI) was hypothesised to affect BI only indirectly via PU. The key role of these constructs in explaining the intention to use OB was also evaluated.

After accomplishment of the first stage and after designing the proposed model, a quantitative approach was employed to collect primary data, using a cross-sectional survey. Using already existing measurement scales, a questionnaire was adapted and improved from the literature with some necessary amendments to better suit this research

context. A pre-test and two pilot studies were carried out before the questionnaire was used officially. Key aim of doing the pilot survey and pre-test was to identify any mistakes and ambiguities in the questionnaire, to avoid misinterpretations and confusions. This phase was completed by a revision and modification the main research instrument, where necessary.

After revising and monitoring the completed surveys, only 945 responses were suitable for use in the analysis. The survey descriptive analysis produced the sample demographic summary and item analysis. This research applied EFA that extract the model factors. After that, the research applied CFA to confirm these factors. To finish, the proposed model and its hypotheses were examined by applying two-stage structural equation modelling. Assessing the reliability and validity of the constructs by testing the measurement model was followed by assessment of the hypothesised relationships by testing the structural model. The conceptual model was found to be of value in explaining the role of the chosen construct that affect people adoption of technology in the Saudi online banking context.

This study findings support all of the seventeen proposed hypotheses. All of the paths suggested were supported. Findings and discussion are presented in detail in this chapter, which organised around the results of the hypothesis testing and also the findings. Then follows the conclusions to the chapter.

7.2 Demographic characteristics

In terms of demographic characteristics, the majority of respondents were male (68.4%), while the latest gender statistics from Saudi Arabia show that the total number of males is almost equal to the number of females (Ministry of Foreign Affairs, 2013). The discrepancy can be explained by another factor: males and females in Saudi Arabia are separated in work activities and social life, reducing the opportunity for females to participate with males in certain activities, and that could be the reason why fewer females participated in the survey, as this survey was conducted by a male researcher.

The majority of the participants were in the age groups between 20 and 40 (about 76 per cent). Around 20 percent were above 40. It was expected to see fewer respondents under the age of 20 (2.4%), as Saudis open bank accounts at the age of 19, and this survey was limited to over 18's. The findings in the literature showed that innovation is adopted more by the younger age group rather than the older (Venkatesh & Morris, 2000; Venkatesh *et al.*, 2003; Rogers, 2010; Venkatesh, *et al.*, 2012).

The participants were divided into five educational levels: bachelor degree (49.2%), higher education (33.3%), diploma (8.7%), high school and lower (8.1%) and other qualifications (.6%). The findings suggest that the majority of participants (more than 82 percent) have a bachelor degree or higher. It could be said that educated participants have increased awareness regarding the importance of information technology. Consequently, they show better ability to use it. This finding is also consistent with the literature (Venkatesh *et al.*, 2000; Choudrie & Lee, 2004; Dwivedi & Williams, 2008; Rogers, 2010).

This research proposed a conceptual model to investigate OB acceptance. The hypothesized model had several latent constructs with proposed relationships. The proposed constructs, their measured items and their relationships are discussed in the next section.

7.3 Descriptive View for the Constructs

The constructs' descriptive analysis achieved through exploratory factor analysis (EFA) stage is discussed in this section.

7.3.1 Behavioural Intention (BI)

The findings show that the mean scores for the BI items ranged between 4.71 and 4.40, which indicates participants' strong BI to use OB. On the other hand, the rates for BI items were higher than the neutral. BI items high scores can suggest that participants were highly interested in using OB. Moreover, these findings are reliable, as the Cronbach's *alpha* reliability for BI was .90 (Table 6.29) showing strong reliability for BI measured items.

7.3.2 Perceived Usefulness (PU)

As the mean scores for PU items ranged between 4.74 and 4.38, the finding indicates that the respondents had an agreement on the usefulness of adopting OB services where it is more effective and useful than traditional banking methods. Moreover, these findings are reliable, as the Cronbach's *alpha* reliability for PU was .86 (Table 6.29) showing strong reliability of PU measured items.

7.3.3 Perceived Ease Of Use (PEOU)

The mean scores for the items ranged between 4.36 and 3.99. These findings show how the participants show confidence dealing with new technology; as a result they rated PEOU highly. Although the mean scores were high and above the neutral scale point, they were below the mean scores for PU. From these findings, it can be seen that although participants were aware of the usefulness of OB, they believed less in their ability dealing with OB. The main reason behind it can be the nature of OB and its complexity. It can be seen from the findings that they are reliable, as the Cronbach's *alpha* reliability for PEOU was .87 (Table 6.29), showing the strong reliability of the PU measured items.

7.3.4 Perceived Trust (PT)

The mean scores for PT items ranged between 3.62 and 4.05. Compared with the mean scores of PU and PEOU above, the findings suggested that some participants had hesitations about their PT in OB services. In addition, the findings might suggest that participants were anxious about the security of OB services. This finding was expected, since security is a main issue of customer concern, especially where financial transactions are concerned (Suh & Han, 2002; Stewart, 2003; Alsajjan & Dennis, 2010; Ariff et al., 2012; Chandio *et al.*, 2013). Moreover, these findings are reliable, as the Cronbach's *alpha* reliability for PT was .88 (Table 6.29) showing the strong reliability of the PT measured items.

7.3.5 Resistance to Change (RC)

The mean scores for RC items ranged between 1.43 and 1.76. The findings show that participants have awareness of the importance of change in online services. Furthermore,

respondents showed their willingness to change from traditional methods of banking and to OB services. Looking at the RC score and results, it can be seen that these results are surprisingly not higher within the Saudi context. However, it can be explained by the fact that the participants in the research (technology users) showed willingness to adopt new products. Moreover, these findings are reliable as the Cronbach's *alpha* reliability for RC was .81 (Table 6.29), showing the strong reliability of the RC measured items.

7.3.6 Perceived Quantity (PQ)

The mean scores for PQ items ranged between 3.47 and 3.73. The findings suggest that the participants believed that not so many people around them were using OB. Although the mean scores were above the neutral scale point, they were not high enough to indicate that most people around the participants were using OB. These findings are reliable, as the Cronbach's *alpha* test for reliability was .89 (Table 6.29), showing the strong reliability of the measured PQ items.

7.3.7 Perceived Image (PI)

The mean scores for PI items ranged between 4.11 and 3.75. The findings show that participants were aware of the importance of using new technology to maintain their self-image. In addition, the findings can indicate that respondents care about their image, and believe that adopting new technology such as OB will enhance their PI in social life and in the work place. Moreover, these findings are reliable, as the Cronbach's *alpha* reliability test for PI was .86 (Table 6.29), showing the strong reliability of measured PI items.

7.3.8 Social Influence (SI)

SI is a measure of the degree to which the participants perceived that people who are important to them believed that they should be using OB websites and services. The mean scores for SI items ranged between 3.78 and 4.20. The findings indicate that the participants care about the opinions of people around them. Although it is not too high, participants believed that people around them should encourage them to adopt new technology, such as OB. It can be seen from the findings that they are reliable, as the Cronbach's *alpha* test for reliability was .91 (Table 6.29), showing the strong reliability of the measured SI items.

7.3.9 Uncertainty Avoidance (UA)

The participants' perceptions about how they feel threatened by uncertain or unknown situations were measured by UA. The mean scores for UA ranged between 1.85 and 4.60, while the average mean score was 3.40. The findings show that respondents highly prefer regulations and instructions that tell them what to do. Contrariwise, they show high willingness for innovative opportunities and making change. It can be seen that, although people do not like to be uncertainty avoiders, they prefer highly the regulations and instructions that tell them what to do. Moreover, these findings are reliable, as the Cronbach's *alpha* test for reliability was .68 (Table 6.29), showing acceptable reliability for the UA items measured, especially taking into account that UA has low reliability in the literature. It was noted that the level of UA in this study (3.4 [68]) was much lower than the expected level in the Saudi and Arabic cultural context reported in Hofstede studies (4.0 [80]). This lower level of UA can be explained by the fact that the nature of the sample (technology users) is normally less avoiding of uncertainty.

7.4 Structural Model Evaluation and Hypotheses Testing

The actual usage of technology is the main variable that practitioners and researchers are concerned about in their investigations. However, most prior research, as explained in Chapter four, measure actual usage by Behavioural Intention. Several authors reported that BI can be seen as a person's perceived likelihood to adopt or use a certain tool or to engage in a given behaviour in the future (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh & Brown, 2001; Venkatesh *et al.*, 2003). It is extensively approved that BI is the main predictor of technology adoption, and has a direct influence on the actual behaviour of adopting a technology (Davis, 1989; Ajzen, 1991; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2012). This study assumes that behavioural intention is influenced directly by perceived usefulness, perceived ease of use, perceived quantity, social influence, resistance to change, perceived trust and uncertainty avoidance, and indirectly by perceived image.

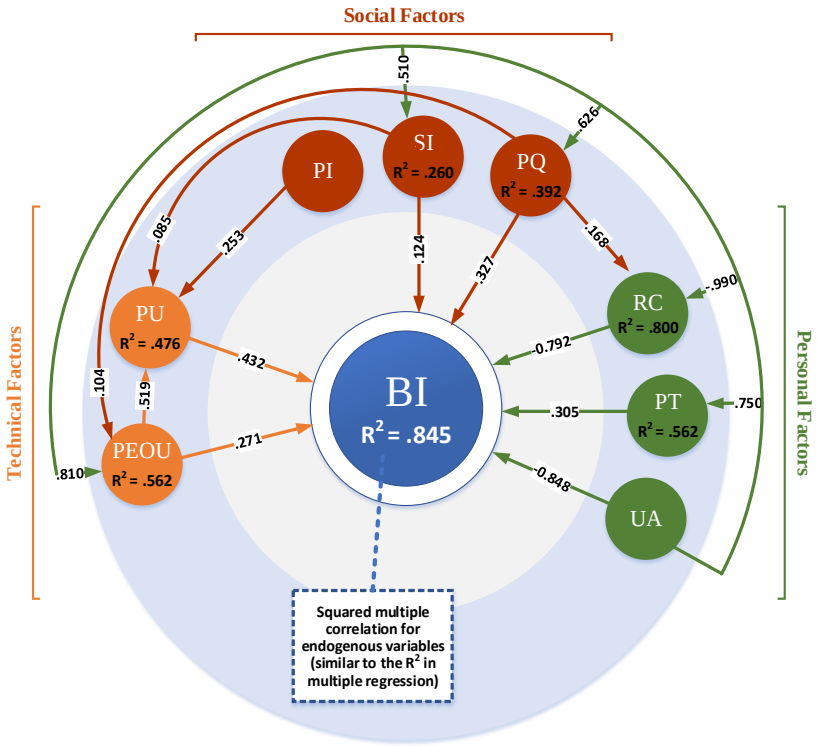


Figure 7.1 Structural Model

The conceptual model in this research was proposed to predict and explain the relationships among the chosen constructs (Figure 7.1). Seven direct predictors of BI to use OB explained 84.5 per cent of BI variance.

By comparing the proposed model with the original behavioural models, such as TAM and TPB, the current model is higher than the previous models in predicting people's intention towards OB. It can be seen that the current model explains more than 80 % of the BI to adopt OB, while TAM explains around 60 per cent of behavioural intention and TPB 70 per cent. Compared to typical studies, this is higher, but there seems to be some similar levels for other extended TAM models in the e-banking domain (e.g. Alsajjan & Dennis,

2010). Alsajjan and Dennis (2010) introduced a new model (IBAM) that was be able to explain around 85% of attitudinal intentions to accept Internet Banking. The power of prediction and high fit indices can distinguish the proposed model from other models, providing a major research contribution.

Those predictors include PU (PU = 0.425), Perceived Ease Of Use (PEOU = 0.271), perceived trust (PT = 0.305), resistance to change (RC = -0.792), social influence (SI = 0.124), perceived quantity (PQ = 0.327) and uncertainty avoidance (UA = -0.848). From the findings, it can be seen that the most significant predictor of BI was UA followed by RC then PU. From the findings, 47.6 percent of the variance in PU was explained by PEOU, PI and SI (0.519, 0.253 and 0.085, respectively). In addition, 56.2 percent of the variance in PEOU construct was explained by PQ and UA (-0.104 and 0.810, respectively). Similarly, 80 percent of the variance in RC construct was explained by PQ and UA (-0.168 and 0.99, respectively). UA was alone able to explain the variance in PQ (39.2 percent), SI (26 percent) and PT (56.2 percent). The next paragraphs offer a detailed discussion regarding the proposed model and its tested hypotheses (Table 6.1).

Table 7-1 Constructs and their Tested Hypotheses

Construct		Hypothesis	
Endogenous constructs	Behavioural Intention (BI)		
	Perceived Usefulness (PU)	H1	PU → BI
	Perceived Ease Of Use (PEOU)	H2a	PEOU → BI
		H2b	PEOU → PU
	Perceived Trust (PT)	H3	PT → BI
	Resistance to Change (RC)	H4	RC → BI

	Perceived Quantity (PQ)	H5a	PQ → BI
		H5b	PQ → PEOU
		H5c	PQ → RC
	Social Influence (SI)	H6a	SI → BI
		H6b	SI → PU
Exogenous constructs	Perceived Image (PI)	H7	PI → PU
	Uncertainty Avoidance (UA)	H8a	UA → BI
		H8b	UA → SI
		H8c	UA → PEOU
		H8d	UA → RC
		H8e	UA → PT
		H8f	UA → PQ

7.4.1 Perceived Usefulness (PU)

According to Venkatesh *et al.* (2003), PU is considered to be one of the most significant and the largest factor impacting people's usage of technology. Furthermore, TAM (Davis, 1989), TAM2 (Venkatesh & Davis, 2000) and C-TAM-TPB (Taylor & Todd, 1995) theorised PU as a direct determinant of behavioural intention to accept new technology. Conceptual model hypothesized PU to have a significant positive impact on customers' BI to use OB (H1). The findings confirmed what the research hypothesised, and found the path from PU to BI both positive and significant statistically. That can be seen from the standardized regression weight, which was 0.425; the critical ratio was 9.66 and $p \leq .001$.

As these findings confirmed the positive impact of usefulness beliefs on customers' intentions to use OB services, hypothesis H1 has been supported which was adopted from prior research in the literature, as explained in the theoretical framework chapter. It is clear that this finding is consistent with prior findings in the literature. For instance, some of prior work has provided the same empirical proof of major impact for PU on technology

adoption (Davis, 1986; Davis *et al.*, 1989; Taylor & Todd, 1995; Morris & Dillon, 1997) and on acceptance of OB (Wang *et al.*, 2003; Pikkarainen *et al.*, 2004; Alsajjan & Dennis, 2010).

It can be understood from the PU significance that participants are more likely to accept OB as they think it is useful. As a result, customers' positive beliefs about usefulness can be seen as a big encouragement to accept OB. To conclude, these findings were in agreement with earlier work that showed that PU plays a significant role in shaping customers' intention to adopt OB.

7.4.2 Perceived Ease Of Use (PEOU)

From the literature, there is clear evidence that PEOU is one of the key determinants of users' acceptance of technology, which has a positive impact on BI (Davis *et al.*, 1989; Gefen *et al.*, 2003; Venkatesh & Davis, 2000; Chan & Lu, 2004). PEOU has been hypothesised in the proposed model to have a significant positive impact on customers' BI to use OB directly (H2a) and indirectly through PU (H2b).

In the proposed model, a positive, direct and significant relationship was hypothesized from PEOU to BI to use OB (H2a). The findings confirmed what the research hypothesised and found the direct path from PEOU to BI both positive and significant statistically. That can be seen from the standardized regression weight, which was 0.27; the critical ratio was 2.557 and $p \leq .05$. As these findings confirmed the positive impact of ease of use beliefs on customers' intention to use OB services, hypothesis H2a has been supported which was adopted from prior research in the literature, as explained in the

theoretical framework chapter. It was shown in the literature that there is a positive significant relationship between PEOU and BI to accept new technology (Mathieson, 1991; Adams *et al.*, 1992; Igbaria *et al.*, 1997; Davis, 1989; Venkatesh & Davis, 2000, Gefen & Straub, 2000; Fusilier & Durlabhji, 2005) and in OB in specific (Wang *et al.*, 2003; Pikkarainen *et al.*, 2004; Alsajjan & Dennis, 2010). From the findings, this research is consistent with prior findings in the literature, providing empirical evidence to support and confirm the existence of a significant impact of PEOU on BI to accept OB.

The model hypothesized PEOU to have a positive, significant and indirect impact on customers' BI to use OB through PU (H2b). The findings confirmed the hypothesis and found the path from PEOU to PU to be positive and significant statistically. That can be seen from the standardized regression weight, which was 0.52; the critical ratio was 12.42 and $p \leq .001$. As these findings confirmed the positive and significant impact of ease of use beliefs on customers' PU to use OB services, hypothesis H2b has been supported which was adopted from prior research in the literature, as explained in the theoretical framework chapter. It was shown in the literature that there is a positive significant relationship between the PEOU and the PU of a technology (Mathieson, 1991; Adams *et al.*, 1992; Davis, 1989; Venkatesh & Davis, 2000, Gefen & Straub, 2000; Wang *et al.*, 2003; Pikkarainen *et al.*, 2004; Fusilier & Durlabhji, 2005). From the findings, this research is consistent with prior findings in the literature, providing empirical evidence to support and confirm the existence of an important impact of PEOU on BI to accept OB through PU.

This study finds that the impact of PU was greater than the impact of PEOU on BI, which suggests that PU is stronger than PEOU in determining BI. The findings are consistent

with previous work (Davis *et al.*, 1989; Venkatesh *et al.*, 2003; Mathieson, 1991). The research finding shows that although PU of OB contributes more than PEOU towards OB adoption, customers depend on both PU and PEOU to adopt OB.

7.4.3 Perceived Trust (PT)

Butt and Aftab (2013) found that consumers might not use OB because they lack trust in Internet businesses. Therefore, consumers' PT in online transactions is important, and has been considered as a key factor for e-commerce to improve (Yousafzai *et al.*, 2003; Ariff *et al.*, 2012). In the proposed model, a positive, direct and significant relationship was hypothesized from PT to BI to use OB (H3). The findings confirmed what the research hypothesised, and found the direct path from PT to BI to be both positive and significant statistically. That can be seen from the standardized regression weight, which was 0.31; the critical ratio was 2.986 and $p \leq .005$. As these findings confirmed the positive impact of PT beliefs on customers' BI to use OB services, hypothesis H3 has been supported which was adopted from prior research in the literature, as explained in the theoretical framework chapter. The findings show that PT has a positive and significant impact on BI to adopt and accept OB, suggesting that any improvement in users' PT will lead to a more positive willingness to adopt OB.

According to Gefen *et al.* (2003) and Gefen and Straub (2000), PT is identified, in the literature, as a key determinant of BI to adopt electronic services. Furthermore, as any technology-driven environment has some level of uncertainty, PT is an important construct to explain e-commerce usage (Gefen *et al.*, 2003). Finally, as findings show an existence

of a positive relationship between PT and BI to accept OB, these findings are in conformity with prior research (Suh & Han, 2002; Gefen *et al.*, 2003; Pavlou, 2003; Stewart, 2003; Lee, 2009; Alsajjan & Dennis, 2010; Chandio *et al.*, 2013; Akhlaq & Ahmed, 2013), which suggests an insistent need for trust in e-commerce and OB.

7.4.4 Resistance to Change (RC)

It has been found that RC has a negative and significant impact on customer's attitude towards using OB (Sathye, 1999; Agarwal & Karahanna, 2000; Alagheband, 2006; Al-Somali *et al.*, 2009; Rammile & Nel, 2012). Therefore, Klaus and Blanton (2010) recommend further investigation to understand the nature of people's RC in the new technology context. The model hypothesized RC to have a significant impact on customers' BI to use OB (H4). The findings confirmed the hypothesis, as the proposed path was strong, negative and significant. That can be seen from the standardized regression weight which was -0.792; the critical ratio was -3.641 and $p \leq .001$. As these findings confirmed the strong, negative and significant impact of RC beliefs on customers' intentions to use OB services, hypothesis H4 has been supported which was adopted from prior research in the literature, as explained in the theoretical framework chapter. The findings show that RC has a negative significant impact on BI to adopt and accept OB. Therefore, the findings suggest that, if banks try to reduce users' RC towards OB services, they will gain more users' positive willingness to adopt OB. Finally, the research findings are in conformity with prior research (Sathye, 1999; Agarwal & Karahanna, 2000; Alagheband, 2006; Al-Somali *et al.*, 2009; and Rammile & Nel, 2012).

7.4.5 Perceived Quantity (PQ)

From the literature, one of the challenges that face banks who wish to invest in online services is the increasing number of Internet banking users wanting to improve PQ for the remaining customers (Liao & Cheung, 2002; Lee, 2009; Ofori-Dwumfuo & Dankwah, 2013). PQ has been hypothesised in the proposed model to have a significant positive impact on customers' BI to use OB directly (H5a), indirectly through PEOU positively (H5b) and negatively through RC (H5c). H5a was adopted from prior research in the literature, while H5b and H5c were proposed as new paths only in this research from the empirical study, as explained in chapters 3& 4.

In the proposed model, a positive, direct and significant relationship has been hypothesized from PQ to BI to use OB (H5a). The findings confirmed what the research hypothesised and found the direct path from PQ to BI to be significant statistically. That can be seen from the standardized regression weight which was 0.327; the critical ratio was 2.305 and $p \leq .05$. As these findings confirmed the significant positive impact of PQ beliefs on the customers' intention to use OB services, hypothesis H5a has been supported which was adopted from prior research in the literature, as explained in theoretical framework chapter. The findings show that PQ has a significant impact on BI to adopt and accept OB. Therefore, the findings suggest that having more people around the customer using OB will lead him / her to a more positive willingness to adopt OB. Although PQ is a new construct, the research findings are in conformity with prior research regarding the similar construct "critical mass" (Liao *et al.*, 1999; Liao & Cheung, 2002; Luarn & Lin, 2005; Lee, 2009; Ofori-Dwumfuo & Dankwah, 2013)

The model hypothesized PQ to have a significant positive impact on customers' BI to use OB through PEOU (H5b). The findings confirmed the hypothesis, as the proposed path was found significant. That can be seen from the standardized regression weight which was 0.104; the critical ratio was 2.031 and $p \leq .05$. As these findings confirmed the significant impact of PQ beliefs on the customers' PEOU, hypothesis H5b has been supported. This hypothesis proposes a new path which did not exist in prior research in the literature, as explained in the empirical and theoretical framework chapters. The findings show that PQ has a significant impact on PEOU of OB. Therefore, the findings suggest that when there are more people using OB around a customer, his / her belief about the ease of use of OB will increase. Finally, this finding can be seen as a new addition to the literature which did not exist before.

In the proposed model, a negative, direct and significant relationship has been hypothesized from PQ to RC which indirectly affects BI (H5c). The findings confirmed a direct path from PQ to RC significant statistically. That can be seen from the standardized regression weight which was 0.17; the critical ratio was 3.09 and $p \leq .005$. Although, these findings confirmed the significant impact of PQ beliefs on the customers' RC, it shows a positive impact. This hypothesis, as in H5b, proposes a new path which did not exist in prior research, as explained in chapters 3 and 4. Although the findings show that PQ has a significant impact on RC, this impact is shown as a positive impact. Therefore, findings suggest that more people around the customer using OB will increase his /her degree of resistance to change to OB. Even though there is a positive relationship, it can be explained by other relationships, such as the high trust level in banks and online services that customers have, which eliminates PQ from decreasing RC. Finally, this finding can be seen as a new addition to the literature and needs more investigation and more research.

7.4.6 Social Influence (SI)

As it was explained in the theoretical framework chapter, the previous literature and prior research has a mixed picture regarding the impact of SI on BI and PU (Mathieson, 1991; Lewis, *et al.*, 2003; Alsajjan & Dennis, 2010; and Montazemi & Saremi, 2013). It has been found in the literature that SI has a positive direct relationship with BI to accept technology in general (Taylor & Todd, 1995; Venkatesh & Davis, 2000; Gopi & Ramayah, 2007; Ramayah *et al.*, 2009) and in OB context in specific (Chan & Lu, 2004; Montazemi & Saremi, 2013). Furthermore, it has been found that SI has a positive impact on PU of OB (Kaba & Osei-Bryson, 2013; Montazemi & Saremi, 2013). However, it is admitted that SI needs to be investigated more regarding its impact on technology acceptance and usage. Consequently, SI has been hypothesised in the proposed model to have a significant positive impact on customers' BI to use OB directly (H6a) and indirectly through PU (H6b).

The model hypothesized SI to have a significant positive impact on customers' BI to use OB (H6a). The findings confirmed the hypothesis, as the proposed path is strong and significant. That can be seen from the standardized regression weight, which was 0.124; the critical ratio was 2.646 and $p \leq .05$. As these findings confirmed the strong significant impact of SI beliefs on the customers' intention to use OB services, hypothesis H6a has been supported which was adopted from prior research in the literature, as explained in the theoretical framework chapter. The findings show that SI has a significant impact on BI to adopt and accept OB. Therefore, the findings suggest that a more positive influence to use

OB from people around the customer will lead him / her to a more positive willingness to adopt OB. Finally, the research findings are in conformity with prior research (Taylor & Todd, 1995; Venkatesh & Davis, 2000; Athiyaman, 2002; Chan & Lu, 2004; Gopi & Ramayah, 2007; and Ramayah *et al.*, 2009).

In the proposed model, a direct and significant positive relationship was hypothesized from SI to PU, which indirectly impacts BI to use OB (H6b). The findings confirmed what the research hypothesised, and found the direct path from SI to PU statistically significant and positive. That can be seen from the standardized regression weight which was 0.085; the critical ratio was 2.477 and $p \leq .05$. As these findings confirmed the significant impact of SI beliefs on the customers' PU to use OB services, hypothesis H6b has been supported which was adopted from the prior research in literature, as explained in the theoretical framework chapter. The findings show that SI has a significant impact on PU of OB. Therefore, the findings suggest that a more positive influence to use OB from people around the customer will increase his / her belief about the usefulness of OB. Finally, the research findings are in conformity with prior research (Venkatesh & Morris, 2000; Ramayah, Rouibah, Gopi, & Rangel, 2009; TAM2; Kaba & Osei-Bryson, 2013; Montazemi & Saremi, 2013).

7.4.7 Perceived Image (PI)

PI has been added to technology adoption models as a construct by several researchers, such as, Moore and Benbasat (1991), who added PI to TAM. Furthermore, Venkatesh and Davis (2000) modified TAM to TAM2 by adding the construct PI, and found it has a significant impact on people's acceptance and adoption of technology through PU. In

addition, the empirical study found that PI is recognised as an important factor influencing the intention to adopt OB. As a result, the model hypothesized PI to have a significant positive impact on customers' PU to use OB (H7). The findings confirmed the hypothesis, as the proposed path is strong and significant. The standardized regression weight was 0.253; the critical ratio was 6.814 and $p \leq .001$. As these findings confirmed the strong significant impact of PI beliefs on the customers' PU to use OB services, hypothesis H7 has been supported which was adopted from prior research in the literature and from the empirical study, as explained in chapters 3&4. The findings show that PI has a significant impact on PU of OB. Therefore, the findings suggest that when a person perceived to use OB, it will enhance his/ her image of status in the social system and he /she will perceive OB to be more useful. Finally, the research findings are in conformity with prior research in other contexts (Venkatesh & Davis, 2000; Lu *et al.*, 2005; Yang *et al.*, 2009) and in the Saudi contexts (Al-Somali *et al*., 2009)

7.4.8 Uncertainty Avoidance (UA)

It has been established in the literature that countries, locations, groups and other ethnic classifications have cultural differences (Hofstede, 2001). Understanding these differences improves the performance of multinational organizations and can provide big advantages to introduce new technologies in local organizations that have been used in other cultures (Chau *et al.*, 2002; Srite & Karahanna, 2006; Al-Gahtani *et al.*, 2007 and Sherer, Kohli, Yao & Cederlund 2011).

The findings of the empirical study suggest that Hofstede's cultural dimension, UA, had a significant impact on people's intention to use OB. Therefore, the UA dimension is included in this study, because adopting new technology, such as OB, has a certain amount of uncertainty. In strong UA cultures, individuals are threatened by unclear, unknown or uncertain situations. It has been found that individuals who have high UA are more likely to be influenced by local communities and others' opinions, to reduce uncertainty and initiate action (Sun & Zhang, 2006; Srite & Karahanna, 2006; Pookulangara & Koesler, 2011; and Hwang & Lee, 2012). Furthermore, it has been found that the influence of PT on BI is less important for the individuals with high UA (Yoon, 2009; Hwang & Lee, 2012). According to Pookulangara and Koesler (2011) and Hwang & Lee (2012), PEOU has less influence on BI for individuals with high UA. All of the discussed studies used UA as a moderator while only one study, to the best of the researcher's knowledge, includes UA as a determinant factor (Souiden *et al.,* 2011). From the evidence, from the above discussion and from the empirical study results, there is good justification to include UA in the proposed model. Prior research included UA as a moderator, whereas this research uses it as a determinant, for several reasons, one being that this research is not a cross-cultural study measuring the moderating role of UA. Apart from a single study in the literature (Souiden *et al.*, 2011), UA has not been investigated as a determinant factor, which is a valuable contribution to this research. Lonner and Adamopoulos (1997) criticise researchers who use cultural factors, such as UA, as a moderator variable that produces unpredictability findings. The authors add that putting culture in the secondary position of theoretical variables does not provide an in-depth and accurate explanation. They recommend future studies to include UA and other cultural factors as determinants rather than moderators.

Therefore UA has been hypothesised in the proposed model to have a significant impact on customers' BI to use OB directly (H81) and indirectly through SI (H8b), PEOU (H8c), RC (H8d) PT (H8e) and PQ (H8f).

In the proposed model, a negative, direct and significant relationship has been hypothesized from UA to BI to use OB (H8a). The findings show that the critical ratio was -2.008 for UA to BI and the standardized regression weight was -0.848. As this result shows that the suggested path between UA to BI was significant at $p \leq .05$, the proposed hypothesis H8a is accepted. Furthermore, UA has impact on BI indirectly through five different paths: (UA → SI → BI), (UA → PEOU → BI), (UA → RC → BI), (UA → PT → BI) and (UA → PQ → BI). This impact can be recognised from the high standardized regression weight for UA to BI which was -0.848.

The model hypothesized UA to have a positive significant impact on customers' BI to use OB through SI (H8b). The findings confirmed the hypothesis, as the proposed path is strong and significant. That can be seen from the standardized regression weight, which was 0.51; the critical ratio was 3.201 and $p \leq .005$. As these findings confirmed the strong significant impact of customers' UA on their SI beliefs, hypothesis H8b has been supported. Although this hypothesis has not been adopted from prior research directly, the literature was a guidance to propose it, as explained previously in Chapter four. The findings show that UA has a significant impact on SI. Therefore, the findings suggest that, when a person has higher UA, he / she will have higher SI to use OB. Finally, although this research differs from prior research in proposing UA as a determinant rather than a moderator, the research finding is consistent with prior research (Sun & Zhang, 2006; Srite & Karahanna, 2006; Pookulangara & Koesler, 2011; and Hwang & Lee, 2012) who confirmed the significant moderating role of UA on SI.

In the proposed model, a negative, direct and significant relationship was hypothesized from UA to PEOU OB (H8c). The findings confirmed what the research hypothesised, and found the direct path from UA to PEOU significant statistically. That can be seen from the standardized regression weight, which was 0.81; the critical ratio was 3.208 and $p \leq .001$. As these findings confirmed the significant impact of UA beliefs on customers' PEOU of OB services, hypothesis H8c has been supported. However, the relation between UA and PEOU shows positive rather than being negative which need further efforts to investigate and explain this relation. Although this hypothesis has not been adopted from the prior research directly, the literature was a guidance to propose the path, as explained previously in Chapters 3 and 4. The findings show that UA has a significant impact on PEOU. Therefore, when one has higher UA, he / she will have higher PEOU for OB. Finally, the research finding is consistent with prior research (Pookulangara & Koesler, 2011; Hwang & Lee, 2012). They confirmed the significant role of UA on PEOU. However, it is not consistent with them in the manner of impact. They found that UA reduces the importance of PEOU as regards adopting new technology, while the current research findings confirm the positive relation between UA and PEOU of OB.

The model hypothesized UA to have a positive significant impact on customers' BI to use OB through RC (H8d). The findings confirmed the hypothesis, as the proposed path was significant. However, it can be seen from the standardized regression weight which was -0.98; the critical ratio was -3.212 and $p \leq .005$ that the relation is negative. Although this hypothesis has not been adopted from prior research directly, the literature and the qualitative part of this research were both guidance to propose it, as explained previously in Chapters 3 and 4. The findings show that UA has a significant negative impact on RC.

Therefore, the findings suggest that when a person has higher UA, he / she will have lower RC towards OB. The research finding is inconsistent with common knowledge and practicality about the positive relationship between UA and RC (Hofstede, 2001; Sun & Zhang, 2006; Srite & Karahanna, 2006; Yoon, 2009; Hofstede *et al.*, 2010). However, it can be explained with other relations such as trust. For example, a person with high UA can reduce his/ her RC towards OB when his/ her trust to the bank is high. Finally, it is an interesting findings need to be investigated and explain more through further work.

In the proposed model, a negative, direct and significant relationship was hypothesized from UA to PT in OB (H8e). The findings confirmed what the research hypothesised and found the direct path from UA to PT to be significant statistically. However, this relation is show positive as it can be seen from the standardized regression weight, which was 0.75; the critical ratio was 3.238 and $p \leq .005$. Although this hypothesis has not been adopted from prior research directly, the literature and the qualitative part of this research were both used as guidance to propose it, as explained previously in Chapters 3 and 4. The findings show that UA has a significant positive impact on PT. Therefore, they suggest that, when a person has higher UA, he / she will have higher PT in his OB organisation. Finally, the research finding is consistent with prior research (Yoon, 2009; Hwang & Lee, 2012), who confirmed the significant role of UA as a moderator on PT. However, this research finding differs in two aspects: UA is used as a determinant, not as a moderator, and the relationship was found positive between UA and PT. The positive impact of UA on PT can be understood by looking at the level of trust that customers have in their banks. As a result, when customers are in an uncertain situation, they put more trust in their

valued organisation (in this research banks), while, in certain situations, there are several factors impacting the customer's decision, and the role of trust will be less.

The model hypothesized UA to have a significant positive impact on customers' BI to use OB through PQ (H8f). The findings confirmed the hypothesis as the proposed path was significant. That can be seen from the standardized regression weight which was 0.626; the critical ratio was 3.202 and $p \leq .005$. As these findings confirmed the strong significant impact of UA beliefs on the customers' PQ of OB users, hypothesis H8f has been supported. Although this hypothesis has not been adopted from prior research directly, the literature and the qualitative part of this research were both used as guidance to propose it, as explained previously in Chapters 3, 4 and 5. The findings show that UA has a significant impact on PQ. From the output above, respondents with high levels of uncertainty about Internet and OB, experience higher levels of PQ of OB users. It can be said that the more uncertainty people feel, the more concerned about the quantity of people using OB they have.

7.5 Impact of demographic factors.

To investigate the impact of demographic variables on OB acceptance, categories of respondent's age, gender and education were analysed by ANOVA and by *post hoc* means' comparison (scheffe's test), when required.

7.5.1 Gender

It was clear that there are statistical significant differences between male and female regarding their intention to use OB, their perceptions about the OB usefulness and ease of use, resistance to change, perceived trust and perceived quantity of OB users. While there

are no significant differences in uncertainty avoidance, social influence and perceived image. The results show that males (participated in this survey) are more willing to use OB than female which is explained by their perceived usefulness and ease of use of OB as they think that OB is a useful technology and it is easy to be used more than what female think. In addition, male are less resistance to change and have more trust in their banks besides their extra believe about the amount of people around them using OB. These results show a significant differences between male and female regarding their acceptance and usage of OB in general. The literature supports this findings, as it is reported that, in developing countries, male are the main users of Internet in general and OB in specific (Venkatesh *et al.*, 2000; Jayawardhenaa & Foley 2000; Singh 2004). For instance, Venkatesh *et al.*, (2000) found that males use technology more than females.

The findings from multi group analysis in SEM shows the moderation role of gender on RC to BI, PEOU to BI and PU to BI. The impact of resistance to change and Uncertainty avoidance on behavioural intention are stronger for female while the impact of perceived ease of use on behavioural intention is stronger for male. The results show that the female model can explain 78.2 percent of the behavioural intention while the male model can explain 65.3 percent of the behavioural intention.

7.5.2 Age

This research found the older group was the highest in avoiding uncertainty while the younger group was the lowest. The highest intention to use OB was within the third group while the lowest intention was within the youngest group with no significant differences. The results show a significant differences between age groups regarding perceived usefulness as the highest group was the fourth one while the lowest was the first one.

Similarly, PEOU ranked high by the forth group and low by the first one. The results show that the third group influenced by social more than the others while the first group is the lowest one. It was clear from the results that the younger people have the lowest resistance to change while the fourth group has the highest resistance to change. Similarly, younger people have the lowest trust to their banks while the fourth group has the highest level of trust. Results revealed that elder people are the lowest among the age groups in perceiving people around them using OB while the fourth group is the highest. Similarly, results showed that elder people are the lowest among the age groups in perceiving the image of OB users while the fourth group is the highest. Therefore, findings show that customer's age has a significant impact on BI to use OB. Therefore, the findings suggest that younger customers have more intention to use online banking than older customers. Finally, the research findings are in conformity with prior research (Leblanc, 1990; Abdul-Muhmin, 1998; Venkatesh & Davis, 2000; Venkatesh *et al.*, 2003; Wixom & Todd, 2005; Porter & Donthu, 2006; Venkatesh *et al.*, 2012)

It was clear that there are statistical significant differences between respondents' age categories regarding their perceptions about the OB usefulness and ease of use, resistance to change, perceived trust and perceived quantity of OB users while there are no significant differences in uncertainty avoidance, behavioural intention, social influence and perceived image.

Findings from multi group analysis show the moderation role of age on PT to BI and SI to BI. The impact of perceived trust and social influence on behavioural intention are stronger for younger group. The results show that the younger group model can explain 71.2 percent of the behavioural intention while the older group model can explain 56.5 percent of the behavioural intention. The findings were consistent with findings in the

literature, which showed that innovation is adopted more by the younger age group rather than the older (Venkatesh & Morris, 2000; Venkatesh *et al.*, 2003; Rogers, 2010; Venkatesh, *et al.*, 2012).

7.5.3 Education Level

Education level were classified into 5 categories; the first group was high school & below, the second group was diploma, the third group was bachelor, the fourth group was higher education, the fifth one was other educational level that has not been listed.

The highest intention to use OB was within the higher education group while the lowest education level have the lowest intention and the difference is significant statistically. It was clear from the results that the higher education group have the lowest resistance to change while the group classify them having other qualification has the highest resistance to change followed by the lowest educational group. Results revealed that higher education people are the highest among groups in perceiving people around them using OB while the lowest education group is the highest. In addition, results showed that the group classify them having other qualification are the lowest among the groups in perceiving the image of OB users while the bachelor holders is the highest.

It was clear that there are statistical significant differences between respondents' education level regarding their behavioural intention to use OB, resistance to change, perceived quantity and perceived image of OB users. The findings show that customers' education level has a significant impact on BI to use OB. Therefore, the findings suggest that highly educated customers are more likely to accept OB, which is in conformity with prior research, as a significant and positive relationship has been found between a person's level

of education and his / her usage of technology (i.e. Venkatesh *et al.*, 2000; Choudrie & Lee, 2004; Dwivedi & Williams, 2008; Rogers, 2010).

Although there are some differences between the educational categories (ANOVA & post hoc test), education does not appear as a moderator for the conceptual model's relationships. The results show that the undergraduate model can explain 69.3 percent of the behavioural intention while the postgraduate model can explain 80.1 percent of the behavioural intention. While both models show a good model fit to the date, the postgraduate model shows more ability to explain the behavioural intention.

7.6 Conclusion

This chapter provided a summary overview of the research, and enabled link between the main goals of the study and its findings. The proposed model was carefully designed after a review of the literature, and after employing a variety of methods in the qualitative part of the study. The data were collected and analysed, and produced 945 valid responses that were included in the analysis stage. According to the demographic analysis, the majority of participants were male (68.4%), which was unsurprising, and is in keeping with social life in Saudi Arabia. Respondent age analysis showed that youngsters are more willing to use the Internet and to participate in e-surveys, which is consistent with the findings in the literature, as innovation is more readily adopted by younger people. According to education level analysis, the majority of participants held a bachelor degree or higher, which reflects the role of education in promoting the use of technology.

The conceptual model in this research was proposed to predict and explain the relationships among the chosen constructs. Seven direct predictors of BI to use OB explained 84.5 percent of BI variance. From the findings, it was found that the most significant predictor of BI was UA, followed by RC then PU. From the findings, 47.6 percent of the variance in PU was explained by PEOU, PI and SI. In addition, 56.2 percent of the variance in PEOU construct was explained by PQ and UA. Similarly, 80 percent of the variance in the RC construct was explained by PQ and UA. UA alone was able to explain the variance in PQ (39.2 percent), SI (26 percent) and PT (56.2 percent). The conclusions of this study are discussed in the next chapter (Chapter eight).

Chapter Eight Conclusions

8.1 Introduction and summary of the research

The aim of this chapter is to present an overview and conclusion to the journey of this thesis and the areas it covers. This chapter discusses the contributions and implications, academically and practically, that have been achieved by the thesis in the area of technology adoption in general and online banking acceptance in particular. The research limitations are discussed, leading to discussion of the research recommended for future research in the area of online banking acceptance, technology adoption and marketing in general. Finally the research will conclude with a summary.

Chapter two reviewed the literature, which showed the need for a conceptual model concerning factors affecting user acceptance of technology, especially within the national and cultural contexts of developing countries like Saudi Arabia. The banks and related government authorities in Saudi Arabia have made great progress towards improving their e-services; however, these efforts came with a lack of theoretical background. This research has explored these concerns, with the aim of providing better understanding of people's acceptance and adoption of OB technology within the specific national context of the country. The main aim of the research was to determine the salient factors affecting user acceptance of OB within the national cultural context of Saudi Arabia. This research improved and examined a conceptual model in order to understand more the factors impacting people's intentions to adopt OB. After the empirical study, the research merged several constructs from other models and theories used in the technology adoption field and added two new constructs (PQ as new factor and UA as new use) and new hypotheses.

With the aim of achieving the research objectives, and to arrive at a well-designed model, the related existing literature was carefully reviewed (Chapter two). Several models and

theories were discussed and compared, and other relevant research papers were reviewed. The literature suggested numerous factors as determinants of people's adoption and usage of technology and OB in specific. This study employed a qualitative approach to arrive at the most appropriate factors to help achieve the research aims and objectives (chapter three). The qualitative approach helped to narrow down factors from the literature and identify new factors that did not emerge in the literature. The qualitative stage of the research was a combination of focus groups and interviews. After accomplishing the first stage, a model was proposed to explain the factors affecting user acceptance of technology in the context of OB in Saudi Arabia. The proposed model comprised eight constructs affecting BI to use OB.

As described in the theoretical framework chapter (Chapter 4), the proposed model assumed that users' intention to accept and use OB is affected by salient users' beliefs. Some of these beliefs were hypothesised to affect intention directly only, such as Perceived Usefulness (PU), Resistance to Change (RC) and Perceived Trust (PT), and some of the beliefs were hypothesised to affect intention directly and indirectly, such as Perceived Ease Of Use (PEOU), Social Influence (SI), Perceived Quantity (PQ) and Uncertainty Avoidance (UA), while Perceived Image (PI) only indirectly affected intention.

After accomplishment of the first stage, and after designing the proposed model, primary data collection was performed through a cross-sectional questionnaire survey as a quantitative approach. Using already existing measurement scales, a questionnaire was adapted and improved from the literature with some necessary amendments to better suit this research context. A pre-test and two pilot studies were carried out before the

questionnaire was used officially. Key aim of doing the pilot study and pre-tests was to identify any mistakes and ambiguities in the questionnaire, to avoid misinterpretations and confusions. This phase was completed by a revision and modification of the main research instrument, where necessary followed by data collection.

After revising and monitoring the finished surveys, only 945 responses remained suitable for use in the analysis. Data analysis was performed using SPSS 20.0 for descriptive analysis and EFA and AMOS 20.0 for CFA, testing the model fit and testing the model hypotheses. Descriptive analysis gave the demographic characteristics of the subjects, as wellas analysing the items. According to the demographic characteristics, 68.4 percent of the participants were male, which was expected given the social life in Saudi Arabia. Respondent age analysis showed that young people were more willing to use the Internet, and to participate in e-surveys, which is consistent with the findings in the literature, as innovation is adopted more readily by the younger age group. From education level analysis, the majority of participants held a bachelor degree or higher, which reflects the role of education in promoting the use of technology.

This research applied EFA in order to extract model factors, followed by applying CFA for confirmation. The hypothesised conceptual model was examined by applying two-stage structural equation modelling. These stages were to assess the reliability and validity of the constructs, by testing the measurement model, followed by assessment of the hypothesised relationships through a test of the structural model. The conceptual model were be able to explain the role of the chosen constructs that affect people acceptance and usage of technology in Saudi OB context.

This study findings support the proposed model and its seventeen hypotheses. All of the suggested paths were supported, and seven direct predictors of BI to use OB explained 84.5 percent of BI variance. From the findings, it was found that the most significant predictor of BI was UA, followed by RC then PU. From the findings, 47.6 percent of the variance in PU was explained by PEOU, PI and SI. In addition, 56.2 percent of the variance in PEOU construct was explained by PQ and UA. Similarly, 80 percent of the variance in RC construct was explained by PQ and UA. UA alone was able to explain the variance in PQ (39.2 percent), SI (26 percent) and PT (56.2 percent). The findings show a moderation role for gender on the relationship from PEOU, PU and RC towards BI. In addition, it shows a moderation impact of age on the relationships between PT and SI towards BI. However, there is no moderation impact of education level on the conceptual model and its relationships.

8.2 Implications of the Study

The implications of this study can be seen from different angles, and can be classified into two groups: academic implications and practical implications. The contributions and implications of this study in the area of technology acceptance in general, and in the context of Saudi OB in particular, are discussed in the next two sub-sections.

8.2.1 Academic Implications

The research findings provide several important academic implications, as follows:

1- The proposed model was one of the first to examine the significant factors affecting user acceptance of OB within the national cultural context of Saudi Arabia. There was a need for a conceptual model concerning national cultural impact on OB acceptance in developing countries in general and in Saudi Arabia specifically. For this reason, the proposed model was constructed with support from Saudi opinion (through conducting an empirical study), and it was supported by existing theories and models, and the relevant literature in the area of technology adoption. Therefore, this proposed model provides a strong frame of reference for the study of online banking acceptance, which is theoretically supported.

2- Another important academic contribution of this research is the first introduction of the construct Perceived Quantity (PQ) of online banking users. To the best of the researcher's knowledge, PQ has not been introduced by previous online banking studies. It shows how a perceived number of people surrounding the person using OB will encourage him / her to use it.

3- One of the new additions in this research was the changing role of the Uncertainty Avoidance construct. Prior research included UA as a moderator for relationships, while this research used it as a determinant of customer intention. That was for several reasons, such as the research was not a cross-cultural study measuring the moderating role of UA; furthermore, UA had not been investigated as a determinant factor, which was a valuable addition to this research as it has been useful to understand the direct impact of UA on the other factors.

4- This model added new relationships, using SEM for analysis, among the factors that influence online banking acceptance, and this provides a better understanding and explanation of user behaviour, with these relationships. SEM was used to

explain and examine interrelationships between multiple dependent and independent constructs at the same time, which offers powerful and rigorous statistical procedures to handle the complexity of the research model and improve the research findings and outcomes.

5- An online survey was accessible through several distribution channels, such as email, Facebook, Twitter, WhatsApp and other social networks. It gave the survey the greater advantages of versatility and speed, which added value to the research. It is confirmed that the survey reached a massive number of customers, which can be certified by the 3,704 bank customers who were be able to start answering the survey, resulting in 945 valid responses.

6- Although the model deals with the impact of Saudi national culture on bank customers to accept online banking, it utilised important variables from the existing literature on many online domains, which make it applicable to use again to explain other online contexts in Saudi Arabia, the GCC and other Arab countries that share the same culture.

8.2.2 Practical Implications

Banks obtain numerous benefits from adopting online banking services, such as financial cost reduction. Banks can serve customers anywhere they are based, through the availability of OB services. As a result, national banks can easily provide global services by adopting OB websites. Furthermore, small financial organisations can compete with older and bigger banks by providing technologically advanced services online. Lastly, satisfying banks' customers through personalizing the banking services according to their needs became an easy task for banks in the Internet age.

On the other hand, adopting OB services is not an easy decision for banks to take. They need to make their OB services attractive for their customers through a carefully designed, secured and updated website. These tasks are not easy tasks for normal banks, as they require huge investment, and banks need to choose between using high-wage expert teamwork, or outsourcing, which is considered a big challenge for banks. Moreover, banks not only face the challenge of adopting OB, but also the challenge of encouraging customers to accept OB. This research aims to contribute practically for banks and several stakeholders who might be interested in using online activities in general and online banking specifically.

1- The proposed model can be used as a guide to support Saudi banks and financial institutions in evaluating and improving their efforts to move customers towards online banking and encouraging them to adopt any new technology products introduced by them, with the result that banks can use their available resources effectively.
2- With well-informed factors, this model was able to improve the understanding of banks and other related institutions regarding the determinants of customer behaviour towards accepting new technology. Accordingly, they can improve their ability to introduce the most suitable services and products with better strategies by understanding how customers behave.
3- This model makes banks aware of regarding the impact of social factors (social influence, perceived image and perceived quantity of OB users) on customers' decisions to adopt and use OB. Moreover, as the new factor PQ has a significant impact on BI, RC and PEOU, it can help banks inspire customers to adopt OB, by showing how many customers are satisfied after adopting OB or online products and services.

4- This model shows how big is the impact of RC on customer's intention to adopt OB. Reducing this resistance through well designed strategies and steps can make it easier for banks to move customers towards the OB channel, with less effort. For example, introducing offers to customers who adopt OB may persuade them to try it. Customer resistance to using OB services can be reduced by allocating a section in traditional branches for customers to try online services with help and support from banks' employees. As RC is a way of thinking, banks can change customers' thinking regarding the change, through advertisements and messages, which should reduce customers' resistance to change and make them more ready to accept OB.

5- One of the most important implications of the study is to show the remarkable impact of uncertainty avoidance on the majority of factors, which makes it the most significant factor impacting customers' intention towards using OB. Although UA is considered to be a cultural trait, and therefore relatively stable, it can be changed and controlled for specific tasks and objectives, such as ambiguity in OB services. By understanding that, banks can adopt new strategies to reduce uncertainty for customers, through several methods, like awareness classes and messages to reduce uncertainty about OB.

6- The other important factors in the model, such as PEOU, PU, PI and PT, need to be taken into consideration by banks. They should design a suitable marketing strategy to persuade customers to leave traditional branches and move towards OB channels, for example by making OB easy and simple, by holding open sessions to educate customers about OB benefits, by increasing customers' trust, by guaranteeing full support when unauthorised access (leading to loss of money) has occurred, and by creating a good image for customers who use OB to act as encouragement for other customers.

In summary, by taking this model and its variables into consideration, banks will make it easy for customers to enjoy financial services online and develop strategies to move customers towards OB services.

8.3 Limitations and future research

Even though this research produced interesting findings, it had some limitations, as most research does; they need to be considered in future examination and research. Any academic research can be improved and developed in several ways. Improvement can be achieved, either by further investigation and exploring new areas in research, or exploring alternative recommended directions. The research limitations and recommendations for further research are as follows:

1. The findings of this research were generated from a study following a cross-sectional data collection method. As a result, the findings need to be further supported by longitudinal studies to examine the ability of the proposed model to explain the impact of national cultural in OB acceptance. This step will enable greater validation and generalisation of the model.
2. These research findings were generated in a voluntary use situation, which makes them unsuitable for direct generalisation for mandatory use of technology. Further work needs to be carried out to investigate the role of Saudi national culture in technology acceptance for mandatory use of technology.
3. The research was conducted in the field of technology adoption, using online banking specifically, and with online banking users only. Consequently, generalising the research findings needs to be addressed carefully for other fields and other users.

4. As the findings of this research are limited to Saudi bank customers, future research is recommended to target other customers in other online contexts. This further research will enhance the validity of the findings and their generalisability.
5. The model and its constructs were designed after an empirical study in Saudi Arabia to suit Saudi culture. Furthermore, the model was tested on Saudis to examine Saudi Culture only. Therefore, the research findings may need a careful generalisation to other cultural contexts. Furthermore, it would be interesting for researchers to expand the proposed model, by comparing several countries or cultures such as the GCC, and the rest of the Arab countries. This type of research will help to assess the strength and validity of the model.
6. In order to choose the factors most relevant to Saudi culture that affect people's acceptance of online banking, the factors found in the literature were narrowed down by using two focus groups of postgraduate and undergraduate students. The nature of the focus group sample may produce a limitation to the research findings.
7. Although making the questionnaire available online through several distribution channels gave it the greater advantages of versatility and speed and, in turn, added greater value to the research findings, it lacked accessibility to those not online. Therefore, the findings of this research may need careful generalisation because of the limited representativeness of the sample. Further efforts need to be done in the same context concentrating on those who are less likely to use technology in the first place.
8. This research has a gender balance issue (68.4 per cent of participants were males), which is consistent with the literature on developing countries and Saudi culture (females unwilling to participate in male activities). However, it is an opportunity

for further research to investigate more OB acceptance, aiming to have a balanced gender participation.

9. This research introduced new constructs for the first time, to the best of the researcher's knowledge (Perceived Quantity and Uncertainty Avoidance as a determinant). Further research can be carried out by expanding and changing the role of the new constructs PQ and UA. This further research will confirm the newly discovered role of PQ and UA as predictors of people's intention to perform an action.
10. This research aimed to explain OB acceptance in the Saudi cultural context by designing an appropriate conceptual model. Marketers, academics and practitioners will find it interesting to use this model to assess people's intentions to adopt non-technology services and products. Although this model aimed to explain OB acceptance, it was designed to suit Saudi culture; therefore, it is recommended to be used in further research with other products and services other than online services.

8.4 Achieving the research aim and answering its questions

This research has arrived through systematic processes at the aim and the goal that was set in Chapter 1. The main aim of the research was to determine the main factors affecting user acceptance of OB within the national cultural context of Saudi Arabia, which was achieved through answering two research questions:

1) What are the salient factors affecting user acceptance of OB within the national cultural context of Saudi Arabia?

This question was partly answered by conducting the literature review (Chapter 2) along with the qualitative study (Chapter 3), to arrive at the eight constructs affecting BI to use OB.

2) How do these factors relate to each other and affect customers' acceptance of OB.

This question was answered by designing the conceptual model and making hypotheses (Chapter 4), which were supported in Chapter 6.

8.5 Summary

The literature revealed a significant need for a conceptual model of the factors affecting user acceptance of technology, especially within the national cultural context of developing countries such as Saudi Arabia. Banks and related government authorities in Saudi Arabia have made great progress towards improving their e-services; however, these efforts came with a lack of theoretical background. This research has explored these concerns with the aim of providing better understanding of people's acceptance and adoption of technology in the context of OB in Saudi Arabia. Therefore, the main aim of the research was to determine the significant factors affecting user acceptance of technology within the national cultural context of Saudi Arabia. This study designed and assessed a proposed conceptual model for better understanding of the salient constructs that impact users' intention to adopt OB in the KSA.

After doing a qualitative study, several constructs from previous models and theories applied in technology acceptance field were integrated into the conceptual model. To the best of the researcher's knowledge, the proposed model was the first to deal with Saudi national culture's impact on customers' acceptance of OB services. The proposed model

was supported by Saudi opinions (through conducting a qualitative study), as well as by the existing theories and models in the relevant literature in the area of technology adoption. Therefore, the proposed model provides a strong frame of reference for studying online banking acceptance, and it is theoretically supported. This research introduced the construct of Perceived Quantity for the first time to online banking users, which may improve understanding of customers' perceptions regarding OB. Furthermore, the research changed the role of the Uncertainty Avoidance construct, from being a moderator of relationships to being a determinant of customer intention.

This research added new relationships between the factors that influence online banking acceptance, in the context of Saudi Arabia, which can provide better understanding and explanations of people's behaviour. To improve the research findings and outcomes, SEM techniques were used to analyse the relationships in the complex research model. Furthermore, distributing the research questionnaire through several online distribution channels, such as emails, Facebook, Twitter, WhatsApp and other social networks make it available to a huge number of Saudi banks customers. In addition, the method of distribution provided the greater benefits of versatility and speed, which added value to the research findings. As reported above, this research dealt with the significant factors affecting user acceptance of OB within the national cultural context of Saudi Arabia. However, it used important variables from the existing literature in many online domains, which make it a comprehensive and parsimonious model to be used to explain other online contexts in Saudi Arabia, the GCC and other Arab countries, which share the same culture.

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Appendices

Appendix A: list of Saudi and foreign commercial banks

Saudi commercial banks are as follows:

- Bank Al Rajhi
- bank Alinma
- bank of Arab National
- AlBilad Bank
- Al-Jazira Bank
- The Saudi Fransi Bank (BSF)
- Bank of National Commercial
- Bank of Riyad
- The Samba Financial Group
- The Saudi British Bank (SABB)
- The Saudi Hollandi Bank (SHB)
- The Bank of Saudi Investment

Licensed GCC and foreign banks working in Saudi Arabia are as follows:

- BNP Paribas.
- Deutsche Bank.
- Emirates Bank (EB).
- Gulf International Bank (GIB).
- J.P. Morgan Chase N.A.
- Muscat Bank.
- National Bank of Bahrain (NBB).
- National Bank of Kuwait (NBK).
- National Bank of Pakistan (NBP).
- State Bank of India (SBI).

Appendix B: Ethical approval

School of Information Systems, Computing and Mathematics
David Gilbert, Head of School, Professor of Computing
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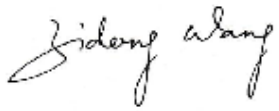
Date: 17th January 2013

STATEMENT OF ETHICS APPROVAL

Proposer: Ahmad Saleh Altwaijri
Title: Towards Online Banking: Investigating customers' acceptance and usage of online banking in Saudi Arabia

The school's research ethics committee has considered the proposal recently submitted by you. Acting under delegated authority, the committee is satisfied that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that you will adhere to the terms agreed with participants and to inform the committee of any change of plans in relations to the information provided in the application form.

Yours sincerely,



Professor Zidong Wang
Chair of the Research Ethics Committee
SISCM

Appendix C: English questionnaires

Towards Online Banking: Investigating customers' acceptance and usage of online banking in Saudi Arabia

I am a PhD research student at Brunel University- London, UK. As part of my thesis, I am conducting a survey to investigate the culture and lifestyle factors that might affect customers' acceptance of online banking in Saudi Arabia.

The questionnaire designed for this study consists of three parts. The first part asks about Internet and online banking experience. The second part asks about the respondent's demographics. The third part measures different perceptions about the online banking and the related habits and characteristics.

If you are a Saudi, having a bank account and over 18, I would be very grateful if you fill out this questionnaire.

Your participation is voluntary and all responses will be anonymous and treated as completely confidential and it will not be possible for anyone to identify the information you supply.

The questionnaire will only take 10-15 minutes of your time and it is recommended not to spend too long on any question. Your first thoughts are usually your best.

It is not compulsory for you to take part and you can withdraw at any time without consequence.

You can choose to supply your email address at the end of the survey if you would like to participate in further discussions about the results.

If you have any concerns or complaints regarding this project please contact siscm-srec@brunel.ac.uk or Dr Annette Payne Tel. No. 01895 266295).

If you have any queries or would like further information about this research, please feel free to contact me.

please choose the appropriate	
I would like to take part in this survey	O
I do not like to take part in this survey	O

Thank you

Ahmad Altwaijri
School of Information Systems, Computing and Mathematics
Brunel University,
West London, UB8 3PH, UK.
Email: ahmad.altwaijri@brunel.ac.uk

Part One: Computer Knowledge and Experience										
1	How do you describe your general computer knowledge?	□	very poor	□	poor	□	moderate	□	good	□	very good
2	How would you describe your Internet knowledge?	□	very poor	□	poor	□	moderate	□	good	□	very good
3	How long have you been using the Internet?	□	don't use	□	less than 1yr	□	1- less than 3 yrs	□	3-less than 5 yrs	□	more than 5 yrs
4	How long have you been using the Internet Banking?	□	don't use	□	less than 1yr	□	1- less than 3 yrs	□	3-less than 5 yrs	□	more than 5 yrs
5	How often do you use the Internet per day?	□	don't use	□	less than 1 hrs	□	1- less than 2 hrs	□	2- less than 3 hrs	□	more than 3 hrs

Part Two: Classification questions													
6	Gender:	□	Male	□	Female								
7	Age:	□	under 20	□	20- under 30	□	30- under 40	□	40 -under 50	□	50- under 60	□	60 and above
8	Highest level of education:	□	high school & below	□	Diploma	□	bachelor	□	higher education	□	other Pls. state ----------		
9	Type of employment:	□	student	□	public sector	□	private sector	□	my own business	□	retired	□	non worker

Part Three: Main questions

Behavioural intention (BI)		strongly disagree	slightly disagree	neutral	slightly agree	strongly agree
12	I would use the online banking for my banking needs.	1	2	3	4	5
13	I will use online banking on regular basis in the future.	1	2	3	4	5
14	Using the online banking for handling my banking transactions is something I would do.	1	2	3	4	5
15	I expect my use of online banking for handling my financial transactions to continue in the future.	1	2	3	4	5
16	I will strongly recommend others to use online banking.	1	2	3	4	5

Perceived usefulness (PU)						
17	Online banking enables me to accomplish banking activities more quickly.	1	2	3	4	5
18	Online banking enables me to accomplish banking activities more easily	1	2	3	4	5
19	Online banking enables me to improve performance of utilising banking services.	1	2	3	4	5
20	Online banking enables me to accomplish more banking activities.	1	2	3	4	5
21	Online banking gives me greater control over financial banking activities.	1	2	3	4	5
Perceived Ease Of Use (PEOU)						
22	Interaction with online banking site is clear.	1	2	3	4	5
23	It is easy to do what I want to do using online banking.	1	2	3	4	5
24	Learning to use online banking is easy.	1	2	3	4	5
25	I expect to become or I am already skilled at using online banking.	1	2	3	4	5
26	Overall, I expect online banking will be easy for me to use.	1	2	3	4	5
Social Influence (SI)						
27	I would consider using online banking if someone personally recommended it.	1	2	3	4	5
28	When trying new technology, I trust my own instinct more than advice from others.	1	2	3	4	5
29	People who influence me would think that I should use online banking.	1	2	3	4	5
30	People whose opinions are valued to me would prefer that I should use online banking.	1	2	3	4	5
31	Most people who are important to me think that I should use or continue to use online banking.	1	2	3	4	5

Resistance to change (RC)						
32	I am interested to hear about new technological developments	1	2	3	4	5
33	Technological developments have enhanced our lives	1	2	3	4	5
34	I feel comfortable in changing and using online banking services for my financial activities	1	2	3	4	5
35	I agree with the change to online banking.	1	2	3	4	5
36	I cooperate with the bank to change to online banking.	1	2	3	4	5
Perceived Trust (PT)						
37	The online banking site are trustworthy	1	2	3	4	5
38	I trust in the benefits of the decisions of the online banking site	1	2	3	4	5
39	The online banking site keeps its promises and commitments	1	2	3	4	5
40	The online banking site keeps customers' best interest in mind	1	2	3	4	5
41	I trust my bank's online banking site	1	2	3	4	5
Perceived Quantity (PQ)						
42	Most people in my group use online banking frequently.	1	2	3	4	5
43	Most people in my family use online banking frequently.	1	2	3	4	5
44	Most people in my community use online banking frequently.	1	2	3	4	5
45	Most people in my class/office use online banking frequently.	1	2	3	4	5
46	Most people I communicate with use online banking frequently	1	2	3	4	5

Perceived Image (PI)						
47	People who use new technology (such as online banking) have higher capability than those who do not.	1	2	3	4	5
48	Using online banking is an indicator of advanced level in Management Information System.	1	2	3	4	5
49	Because of my use of new technology (such as online banking), others see me a more valuable person than those of others.	1	2	3	4	5
50	People who use new technology (such as online banking) are more desirable, in work environment, than those who do not.	1	2	3	4	5
51	People who use new technology (such as online banking) have more prestige, in work environment, than those who do not.	1	2	3	4	5
Uncertainty Avoidance (UA)						
52	Online banking websites' rules and regulations are important because they inform users what the bank expects of them	1	2	3	4	5
53	It is important to have online banking instructions spelled out in detail so that people always know what they are expected to do	1	2	3	4	5
54	It is better to have a bad experience that you know about, than to have an uncertain experience which might be better.	1	2	3	4	5
55	Providing opportunities to be innovative is more important than requiring standardized use procedures	1	2	3	4	5
56	People should avoid making changes because things could get worse.	1	2	3	4	5

Thank you for your participation.

If you would like to participate in further discussions about the results, you can supply your email address:

Appendix D: Arabic questionnaires

التسويق الاستراتيجي والالكتروني: استقصاء أسباب قبول التقنية الحديثة في الثقافية السعودية (حالة قبول واستخدام العملاء السعوديين للانترنت المصرفي)

أنا باحث في مرحلة الدكتوراه من جامعة برونيل في لندن، المملكة المتحدة. وكجزء من رسالة الدكتوراه أقوم بهذه الاستبانة لاستقصاء الأسباب التي تؤثر في قبول الأشخاص للتقنية الحديثة ومدى ارتباطها بالثقافة وقد تم اختيار الإنترنت المصرفي لتطبيق هذه الاستبانة.

هذه الاستبانة مقسمة إلى قسمين. القسم الأول مخصص للبيانات الديموغرافية الشخصية وكذلك الخبرة والإلمام باستخدام الحاسب الآلي و الانترنت وهي لأهداف التصنيف الاحصائية فقط. القسم الثاني مخصص لمعرفة انطباعات المشاركين حول بعض المفاهيم المرتبطة باستخدام التقنية عموماً والانترنت المصرفي خصوصاً.

إذا كنت سعودياً أو سعودية، ولديك حساب بنكي، وتبلغ من العمر 18 سنة فما فوق، سأكون ممتناً لك بالمشاركة في هذه الاستبانة. علماً بأن المشاركة في هذه الاستبانة اختيارية، و جميع المشاركات مجهولة المصدر، وليس من الممكن لأحد أن يطلع على المعلومات التي قمت بإرسالها.

تحتاج لإكمال هذه الاستبانة من 8 إلى 13 دقيقة فقط. كما ينصح بعدم الإطالة في أي سؤال. انطباعاتك العفوية و الأولى هي غالباً ما نريد وهي الأفضل.

إذا كنت ترغب في مناقشة نتائج هذه الاستبانة لاحقاً أرجو إمدادي بالبريد الإلكتروني في نهاية الاستبانة. و إذا كان لديك أي استفسارات أو تود الحصول على معلومات إضافية حول هذا البحث ، لا تتردد في الاتصال بي:

أحمد بن صالح التويجري
جامعة برونيل، لندن ـ بريطانيا
ahmad.altwaijri@brunel.ac.uk

إذا كان لديك أي اعتراض أو ملاحظة على هذه الاستبانة، تستطيع مراسلة الجامعة على البريد التالي:

siscm-srec@brunel.ac.uk (Dr Annette Payne Tel. No. 00441895 266295)

أشكر لك لطيف تعاونك،،

الجزء الأول: الألمام والخبرة في استخدام الحاسب الآلي والانترنت							
1	كيف تقيم معرفتك باستخدام الحاسب الآلي؟	š	ضعيفة جداً	ضعيفة	متوسطة	جيدة	جيدة جداً
2	كيف تقيم معرفتك باستخدام الانترنت؟	š	ضعيفة جداً	ضعيفة	متوسطة	جيدة	جيدة جداً
3	منذ متى وانت تستخدم الانترنت؟	š	لم أستخدمه	أقل من سنة	سنة - أقل من ٣ سنوات	٣ سنوات - أقل من خمس سنوات	أكثر من خمس سنوات
4	منذ متى وانت تستخدم الانترنت المصرفي؟	š	لم أستخدمه	أقل من سنة	سنة - أقل من ٣ سنوات	٤ سنوات - أقل من خمس سنوات	أكثر من خمس سنوات
5	كم تقدر الوقت الذي تقضيه على الانترنت يومياً؟ (بما فيها وسائل التواصل الاجتماعي)	š	لا استخدم الانترنت	أقل من ساعة	ساعة - أقل من ساعتين	ساعتين - أقل من ثلاث ساعات	أكثر من ثلاث ساعات

الجزء الثاني: أسئلة ديموغرافية							
6	الجنس	š	ذكر	انثى			
7	العمر	š	أقل من ٢٠	٢٠ -أقل من ٣٠	٣٠- أقل من ٤٠	٤٠ - أقل من ٥٠	٥٠ - أقل من ٦٠	٦٠ أو أكثر
8	أعلى شهادة علمية	š	الثانوية العامة أو أقل	دبلوم متوسط	بكالوريس	تعليم عالي	غير ذلك	
9	المهنة	š	طالب	قطاع عام	قطاع خاص	عمل خاص	متقاعد	غير موظف

الجزء الثالث: ألأسئلة الأساسية

	الرغبة في استخدام الانترنت المصرفي	لا أوافق تماما	لا اوافق	محايد	أوافق	أوافق بشدة
10	أرغب في استخدام الانترنت المصرفي لانجاز معاملاتي البنكية	1	2	3	4	5
11	سوف استخدم الانترنت المصرفي بانتظام	1	2	3	4	5
12	استخدام الانترنت المصرفي لاتمام العمليات المصرفية شيء أرغب أن أقوم به	1	2	3	4	5
13	أتوقع أن يستمر استخدامي للانترنت المصرفي في المستقبل	1	2	3	4	5
14	سأشجع من أعرف باستخدام الانترنت المصرفي	1	2	3	4	5
	المنفعة المتصورة					
15	الانترنت المصرفي يساعدني على انجاز معاملاتي البنكية بشكل أسرع	1	2	3	4	5
16	الانترنت المصرفي يساعدني على انجاز معاملاتي البنكية بشكل أسهل	1	2	3	4	5
17	الانترنت المصرفي يساعدني على تطوير أدائي في اتمام الخدمات البنكية	1	2	3	4	5
18	الانترنت المصرفي يساعدني على اتمام عمليات مالية أكثر	1	2	3	4	5
19	الانترنت المصرفي يمكنني من التحكم بالخدمات المالية البنكية	1	2	3	4	5
	سهولة الاستخدام المتصورة					
20	التفاعل مع مواقع الانترنت المصرفي واضح	1	2	3	4	5
21	من السهل علي القيام بما أريد باستخدام مواقع الانترنت المصرفي	1	2	3	4	5
22	تعلم استخدام الانترنت المصرفي سهل	1	2	3	4	5
23	أتوقع أن أصبح ماهراً في استخدام الانترنت المصرفي	1	2	3	4	5
24	بشكل عام، أتوقع أن استخدام الانترنت المصرفي سهل	1	2	3	4	5
	التأثير الاجتماعي					
25	سوف آخذ بعين الاعتبار استخدام الانترنت المصرفي، اذا نصحت باستخدامه شخصياً	1	2	3	4	5
26	عندما أجرب تقنية جديدة فإني اثق بمهاراتي أكثر من نصائح الآخرين	1	2	3	4	5
27	الأشخاص الذين أتأثر بهم، يعتقدون أنه ينبغي أن استخدم الانترنت المصرفي	1	2	3	4	5
28	الأشخاص الذين تهمني آرائهم، يعتقدون أنه ينبغي أن استخدم الانترنت المصرفي	1	2	3	4	5
29	أغلب الأشخاص المهمين بالنسبة لي يعتقدون أنه ينبغي أن استمر في استخدام الانترنت المصرفي	1	2	3	4	5

مقاومة التغيير						
30	أنا أرغب في سماع الجديد عن التطور التقني	1	2	3	4	5
31	التطورات التقنية عززت وطورت اسلوب حياتنا	1	2	3	4	5
32	أشعر بارتياح عند استخدم الانترنت المصرفي في انجاز خدماتي المالية	1	2	3	4	5
33	أنا أوافق على التحول الى استخدام الانترنت المصرفي	1	2	3	4	5
34	أنا اتساعد مع بنكي للتحول الى الانترنت المصرفي	1	2	3	4	5
الثقة في مواقع الانترنت المصرفي						
35	مواقع الانترنت المصرفي جديرة بالثقة	1	2	3	4	5
36	أنا أثق بالقرارات التي تصدرها مواقع الانترنت المصرفي	1	2	3	4	5
37	مواقع الانترنت المصرفي تحافظ على وعودها والتزاماتها	1	2	3	4	5
38	مواقع الانترنت المصرفية تأخذ بالاعتبار مصلحة عملائها	1	2	3	4	5
39	انا أثق بموقع الانترنت المصرفي في بنكي	1	2	3	4	5
عدد مستخدمي الانترنت المصرفي						
40	معظم الناس الذين تربطني بهم علاقة يستعملون الانترنت المصرفي بشكل مستمر	1	2	3	4	5
41	اكثر الأشخاص في عائلتي يستعملون الانترنت المصرفي بشكل مستمر	1	2	3	4	5
42	أكثر الأشخاص في المجتمع الذي أعيش فيه يستعملون الانترنت المصرفي بشكل مستمر	1	2	3	4	5
43	اكثر زملائي يستعملون الانترنت المصرفي بشكل مستمر	1	2	3	4	5
44	أكثر الناس الذين اتواصل معهم يستعملون الانترنت المصرفي	1	2	3	4	5
النظرة لمستخدم الانترنت المصرفي						
45	الأشخاص الذين يستعملون التقنية الحديثة (مثل الانترنت المصرفي) لديهم قدرات أكثر من الذين لا يستعملونها	1	2	3	4	5
46	استخدام الانترنت المصرفي يعد مؤشراً على المستوى العالي في استخدام نظم المعلومات	1	2	3	4	5
47	استخدامي التقنية الحديثة (مثل الانترنت المصرفي) يجعل الآخرين يرون أني أفضل من الذين لا يستعملونها	1	2	3	4	5
48	الذين يستعملون التقنية الحديثة (مثل الانترنت المصرفي) يكونون مرغوبين في بيئة العمل أكثر من سواهم	1	2	3	4	5
49	الذين يستعملون التقنية الحديثة (مثل الانترنت المصرفي) يكونون أكثر حظوة في بيئة العمل من غيرهم	1	2	3	4	5

تجنب المجهول						
50	القوانين والانظمة الحاكمة لمواقع الانترنت المصرفي مهمة لأنها ترشد المستخدمين عن ماذا يتوقعه البنك منهم	1	2	3	4	5
51	من المهم أن يكون هناك ارشادات مفصلة لمواقع الانترنت المصرفي لكي يعرف الناس ماهو المتوقع منهم عمله	1	2	3	4	5
52	تكرار تجربة سيئة لكنها معروفة النتائج أحسن من خوض تجربة جديدة قد تكون أفضل لكنها غامضة النتائج	1	2	3	4	5
53	الحاجة لفتح المجال للابداع أهم من الحاجة لوضع معايير واجراءات موحدة وثابتة للاستخدام	1	2	3	4	5
54	من الأفضل أن يتجنب الناس التغيير لأن التغيير قد يؤدي الى ماهو أسواء	1	2	3	4	5

شاكرا لك مشاركتك واهتمامك

إذا كنت ترغب بالحصول على نتائج هذه الدراسة فما عليك سوى اضافة بريدك الالكتروني لتصلك النتائج:

Appendix E: interviewees' details

The table below have the interviews' and interviewees' details:

	Interviewees	International experience	Interview's length	date
1	The General Manager of Internet Banking in a big Saudi bank.	7 years (USA & UK)	01:15:00	15.7.2010
2	The Manager of Information Technology and the Development Department in a big Saudi bank.	8 years (USA)	01:45:00	12.8.2010
3	Full Professor in international marketing, Gassim University.	9 years (USA)	01:40:00	11.9.2010
4	Executive manager in a business solutions company.	10 years (USA)	01:30:00	18.9.2010
5	An owner of a leader consultation company working with banks and the Saudi Government.	17 years (USA)	55:00:00	22.9.2010
6	Professor in business management and a consultant for Minister of Commerce and Industry.	12 years (USA & UK)	01:35:00	7.10.2010
7	Professor in strategic management and innovation and one of the principal authors on the subject of culture and society.	5 years (UK)	01:30:00	8.10.2010
8	A consultant in business system development (also an academic).	11 years (USA)	1:50:00	13.12.2010
The interview discussion was in three parts:				
1- Efforts that have been made in OB in Saudi Arabia. 2- The role of social factors and culture in OB acceptance. 3- Evaluation of the factors from focus group 1 and generating new ideas and factors that had not been realised.				

Appendix F: The interview questions

The following questions were used as a guidance while conducting the interviews:

the semi-structure interviews questions
1- The efforts that have been done in OB in Saudi Arabia.
How do you see the OB market in KSA?
What are the main efforts that have been done so far in OB context?
How do you see the future of OB services?
2- The role of social factors and culture in OB acceptance.
Do you think the culture play a key role in technology adoption?
Do you think Saudi Arabian culture has special characteristics?
What is the main difference between Saudi Culture and other cultures?
3- Evaluation of the factors from focus group (1) and their recommended factors that has not been mentioned.
Do you see controlling the customers' intention useful and possible?
Do you see personal image can enhance using OB?
Dose number of people using OB makes an impact on customers?
Dose ease of use OB make an impact on customers?
Dose enjoyment in using OB make an impact on customers?

Dose the useful of using OB impact customers' decision?
Do you think personal factors can play a key role in OB acceptance?
Do you think Professional background can play a key role in OB acceptance?
Dose quality of Internet connection can play a key role in OB acceptance?
Dose customers' resistance to change play a key role in OB acceptance?
Dose security issues play a key role in OB acceptance?
Do you believe in the Social Influence in OB acceptance?
Do you believe in the role of customers trust to their banks in OB acceptance?
Do you believe in the impact of any further factor that has not been mentioned in OB acceptance?