

**The Application of Information Systems in the Jordanian
Banking Sector
A study of the Acceptance of the Internet**

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requirements for the award of the degree of**

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CERTIFICATION

I, Ahmad Al-Sukkar, declare that this dissertation, submitted in fulfilment of the requirements for the award of Doctor of Philosophy in Information Systems, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Ahmad Al-Sukkar

MAY 2005

ABSTRACT

This thesis reports the findings of a study into issues concerning the acceptance of Internet Banking in Jordan, a country of the Middle East. Although conducted at a particular site on a particular IT application, there is justification for claiming that the findings are relevant to the introduction of the broad spectrum of Internet applications into other countries of the region and into developing countries in general. Thus the study makes significant contributions across all areas of IT adoption and usage research and practice as well as informing the banking sector in Jordan.

The research began with an exploratory study involving some preliminary interviews with bank managers in Jordan and a review of some relevant literature. This led to the decision to base the study on the well-known Technology Acceptance Model (TAM) with extensions to make it more relevant for a developing country such as Jordan whose environment is significantly different from that of the Western countries where the technology originated. To this end external variables were added to the model consisting of constructs under the heading of culture and trust from the consumer side and technology quality from the banking side.

For the main study a mixed method approach was taken. An extensive empirical survey was undertaken to collect and analyse quantitative data from bank customers to test the expanded TAM. At the same time interviews were conducted with bank managers, IT people and academics in the field of social science. This qualitative data was processed

using manual inspection and computer-based content analysis techniques to supplement the output of the quantitative study.

The results of the quantitative and qualitative studies are discussed in terms of their academic contribution to the understanding of IT acceptance in developing countries and the development of additional constructs to TAM. There is also a major contribution to specific issues of technology acceptance in Jordan which may guide those responsible for decisions on the future economic and societal directions of the country.

PUBLICATION FROM THE RESEARCH

The following papers and publications have been produced from the research reported in this thesis.

1. *Al-Sukkar A. and Hasan H. (2005). "An Expanded Technology Acceptance Model for late Adopters of E-Commerce". The Journal of Information Technology for Development (JITD).*
2. *Al-Sukkar A. and Hasan H. (2004a) "Internet Banking in the Middle East: A Jordanian Study", Proceeding of CISTM Conference. Transforming Business Performance through Knowledge Management. Alexandria, Egypt, 2004*
3. *Al-Sukkar A. and Hasan H. (2004b). "The Customers' Perception of Usefulness and Ease of Use of Information Technology Adopted by Commercial Banks in Jordan". Proceeding of the 2004 International Business Information Management Conference. Amman, Jordan, 2004*

IN PROGRESS

4. *Al-Sukkar A. and Hasan H. (2005). "The effect of the cultural diminutions on the acceptance of the new technology in Jordan".*
5. *Al-Sukkar A. and Hasan H. (2005). "The Effect of Trust in Terms of Electronic Channels and Institution on New Technology Acceptance in Jordan ". Proposal*
6. *Al-Sukkar A. and Hasan H. (2005). "The relationship between the technology quality and the acceptance of the new technology in Jordan".*

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ACRONYMS

ATU	Attitude Toward Using
AU	Actual Use
B2B	Business-to-Business
B2C	Business-to-consumer
BI	Behavioural Intention
CA	Convenience/Accuracy
EF	Efficiency
FC	Feedback/Complaint management
IB	Internet Banking
IC	Individualism/Collectivism
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
ITT	Information Technology Transfer
LST	Long vs. short-term time orientation.
MF	Masculinity/Femininity
PD	Power Distance
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
SP	Security/Privacy
TAM	Technology Acceptance Model
TB	Trust in the Bank
TE	Trust in the Electronic Channel
TRA	Theory of Reasoned Action
UA	Uncertainty Avoidance

CHAPTER 1. INTRODUCTION

Advances in information and communication technologies in particular, the growing use of the Internet for business transactions, have had a profound effect on the banking industry. While this is a global phenomenon, creating a truly global marketplace, penetration of Internet banking into less developed countries lags behind that of the developed Western countries. While poor economies, education and infrastructure are obvious factors in the slow adoption of technology in some developing countries, there are probably also cultural issues that play a role. The Middle East is a region that consists of many developing countries where culture and religion strongly influence business and social behaviour. This thesis reports the conduct and findings of research into the adoption of Internet banking in Jordan, a country of the Middle East, and proposes a framework composed of a variety of factors that are likely to be involved in its acceptance by users.

The major trends affecting the financial markets in all countries are Globalisation, Deregulation, Liberalisation, technology, and changing demographics (Seipp, 2000). Liberalization and deregulation in the banking sector means increasing competition among banks and other financial institutions with a variety of new players in the financial service sector. The advancement in information technology has caused a downsizing in traditional bank branch networks (Sathye, 1999; Jayawardhena and Foley, 2000; Karjaluo et. al., 2002b; Mattila, 2001). However, it is globalisation that is expected to most “reflect the progressive interaction of the world economics” (World Bank, 2000).

To better understand the competitive and rapidly changing environment of Internet banking.

The Internet banking sector is subject to both internal and external forces. There are four external forces: the changing technological, political, economic, and social environments (Nellis, 1998; Jayawardhena and Foley, 2000). Economic and political changes have increased the influence and rights of the customer, whereas legislation has increased competition in the financial services industry. The changing social environment includes the emergence of mature bank customers. Mature customers provide new challenges for financial service providers. Social changes have also taken place in cultural values, beliefs and attitudes toward technology and society. According to the results of a study by Jayawardhena and Foley (2000), external forces in the banking environment have the greatest impact on the sector.

Jayawardhena and Foley (2000) have categorised internal forces into three classes: threat from new entrants, increasing customer power, and volatile supply forces. One of the disadvantages for traditional banks presented by the Internet is the threat from new entrants. The banking sector will be a very competitive market in the future so that an important question for banks is how they can increase their number of loyal customers. An answer to this may, lie in good online-services provided through the Internet.

Increasing customer power means that the power is shifted from banks to their customers, i.e., customers are able to control almost all of their financial transactions, and even loans, via the Internet.

Volatile supply forces has had a profound impact on the delivery chain of banks. The reduction in the number of bank branches and deposit bank personnel has changed the banking sector. Consequently, customers are in a sense constrained to use Internet delivery channels in their bank, instead of having an extensive traditional branch network complete with many employees around them. Further changes can be expected with the implementation of these Internet-enabled delivery mechanisms. However, banks are investing heavily in online customer services in order to provide fast and easy-to-use Internet delivery channels with personalised service (Jayawardhena and Foley, 2000; Nellis, 1998).

The emergence of new banking technology creates highly competitive market conditions, which have a critical impact upon consumer behaviour. Internet banking providers must, therefore, attempt to better understand their customers and their attitudes toward technology in general. If they succeed, banks will be able to influence and even determine consumer behaviour, which will become a major issue in creating competitive advantage in the future (Jayawardhena and Foley, 2000; Nellis, 1998).

As a result of the extension of banking services, high competition between banks and global market conditions, the banks in the developing countries are at risk because such developing countries are typically viewed as late adopters of new technology. One report in *PC Magazine - Middle East edition* (1998), for example, showed that the use of the Internet for e-commerce in the Middle East was largely ineffective and, from this research, this still appears to be the case and is probably so in much of the less developed world. This reluctance to embrace e-commerce is a particularly important issue for the banking industry, where developing countries are encountering the need to

introduce technologies that are routinely used in the developed world to enhance and improve the quality of their basic services. Encouraging consumers to make more use of Internet banking is becoming a necessity for all countries that want to be successful in the global economy. In this thesis, the researcher will focus on the diffusion of banking technology into countries of the Middle East, as it is assumed that such results can be applied to developing countries in general.

1.1 The Research Approach

This research develops and tests a theoretical extension of the Technology Acceptance Model (TAM) (Davis, 1993; 1989; 1992) and examines the factors that influence the adoption, usage and acceptance of the information technology and systems of the Internet; in the bank sector in Jordan, and specifically Internet banking. It examines the importance of these factors and asks questions of why users accept or reject the new information technology and Internet-based systems.

TAM variables, perceived usefulness (PU) and perceived ease of use (PEOU) are posited as two key drivers (cognitive beliefs) in accepting new technology. Both PU and PEOU have a significant influence on an individual's attitude towards using a technology, which has a subsequent impact on the behavioural intention to use the technology. As in the original TAM (Davis, 1989), this research recognises external stimuli in the model, in particular, social influences (culture and trust) from the human side and technology quality characteristics from the bank's side. The contribution of this study is to enhance the understanding of the diffusion and acceptance of new information technology in Jordan, as already published by the candidate (Al-Sukkar and Hasan, 2005; 2004a).

TAM has proven to be among the most effective models in the information systems literature for predicting user acceptance and usage behaviour. The original instrument for measuring these beliefs was developed and validated by Davis (1986, 1989, 1993), Davis *et al.* (1989), and replicated by Adams, Nelson and Todd (1992), Mathieson (1991), Hendrickson, Massey, and Cronan (1993), and Segars and Grover (1993). The instrument has also been used extensively by researchers investigating a range of issues in the area of user acceptance (e. g. Moore and Benbasat, 1991; Olfman and Bostrom, 1991; Trevino and Webster, 1992; Chin and Gopal, 1993; Sjazna, 1994; Venkatesh and Davis, 1994, 1995, 2000; Taylor and Todd, 1995).

This research includes an examination of the appropriateness of the TAM model for the study of Internet banking in a developing country. It will first examine literature, which suggest that models of information technology acceptance and use in developed countries may not be totally applicable to less-developed countries. It will then present the results of a preliminary investigation into the penetration of Internet Banking in Jordan, a strategic country in the Middle East. The literature and research results will then be analysed to suggest modifications to the Technology Acceptance Model to make it more relevant for research into technological adoption in less developed, and developing countries. These modifications to TAM are then evaluated by an empirical evaluation of the model; Jordan is a part of the Middle East.

In this study, TAM, whose basis is the Theory of Reason Action (Fishbein, 1979) is chosen as a suitable research framework. It is consideration feasible to study these phenomena in conjunction with the external variables of culture, trust and technology quality. Both TAM and the external variables guide this research to explain human

behaviours toward the acceptance/adopt and use of Internet banking in Jordan. as follows: TAM (Davies, 1992,1993, 1989, 1986; Davies, et. al, 1989; MaO, 2002; Srivihok, 1999; Disshaw and Strong, 1997, 1999; Kwon and Chidambaram, 2000; Thompson et. al, 1991; Bergeron et. al, 1995), whose basis is the Theory of Reason Action (TRA) (Fishbein and Ajzen, 1975; Fishbein, 1979). Also On the human side: social factors (culture dimensions) from (Hofstede, 1980; Srite, Mark David, 2000; McCoy, Scott, 2002.) and trust factors from (Yang, Zhilin, 2001; Kyu Kim, Bipin Prabhakar, 2000, Paul A. Pavlou, 2003). Moreover, on technology quality: from (Minjoon Jun et. al., 2001; 2002; Minjoon Jun, Shaohan Cai, 2001; Zhilin Yang, Robin T. Peterson, 2001; Cathy S. Lin, Sheng Wu, 2002).

1.2 Background to the Study

Modern information and communication technology (ICT) is helping companies not only to excel, but also frequently just to survive. In fact, almost all organisations, private or public, in manufacturing or services industries use various forms of information and communication technology (ICT), including electronic commerce, to support their operations (Turban et al., 2000). The nature and role of information and communication technology (ICT) in organisations has also evolved over the past forty years from providing little more than data-processing support in the 1960s to being an indispensable strategic business asset to twenty-first-century corporations. Information and communication technology (ICT) has become the major facilitator of business activities in the world today (Dertouzos, 1997).

Du Plooy and Roode (1993) debated the issues around the careless infusion of information technology into the economies of developing countries. They concluded

that there are significant differences between the application and management of IS/ICT in developed countries and developing countries. The particular nature of IS/ICT management processes and strategies in small and micro organisations is highly variable, and also significantly different from that of larger organisations.

This study examines factors that will affect and influence the adoption of Internet banking in Jordan, which is developing country. In particular it investigates customers' perception of the usefulness and ease of use of current Internet-based information technology, as adopted by Jordanian banks.

The Internet is a new technology, which has been recently adopted throughout the world. Jordan is a part of the global marketplace, therefore, this kind of service is very important for their customers. Currently, the use of the Internet within organisations in the Middle East, including Jordan, seems to be ineffective and consumers have typically been late adopters of technology such as Internet banking. However, there is little doubt that it is necessary for developing countries to learn to cope with the technology developments present in developed countries, in order to enhance and improve the quality of their services and hence be competitive in the global economy.

Previous studies have shown that in the Middle East, Internet users are mostly interested in e-mail and chatting, therefore, Internet transactions have been minimal, even though this service is offered for free by some large banks (See for example *PC Magazine - Middle East edition*, 1998). In Jordan, many other banks are in the process of establishing Internet banking services and hence have a stake in its success. Perception of usefulness and ease of use are addressed in this study as factors that may play an

important role together with the consumers' attitudes as well as the belief in the process of Internet banking acceptance.

Understanding why people accept or reject (late adopt) new Information Technology has proven to be one of the most challenging issues in information systems research. Two particular, user-related cognitive beliefs, Perceived Usefulness and Perceived Ease of Use are key determinants of attitude towards using a system; the actual system use can be predicted reasonably well from their behavioural intentions. The Perceived Usefulness and Perceived Ease of Use are also a major determinant of Attitude Towards Using the System. In fact, there is empirical evidence to show that attitude towards using mediate the effect(s) of beliefs on behavioural intention. In other words, attitudes towards use influences behavioural intention to use the system, which in turn influences actual system use, in that causal sequence (Ajzen and Fishbein, 1975, 1979; Davies, 1989; 1993; Davies, et al., 1992; Venkatesh and Davies, 1996; Triandis, 1979; 1971).

One advantage of TAM is its supposed universality and the ability of researchers and practitioners to apply it to any system. In order to extend TAM, the new constructs should also be general enough to apply to any system. This research not only tests the relation between perceived usefulness and perceived ease of use, but also culture, trust and system quality variables in order to extend this stream of research into other parts of the world. Although these extensions are applied to specific Internet banking systems in this research, it is suggested that it could lead to a more general extension of the model, which would constitute a much larger contribution. Internet banking is becoming such a universal phenomenon that it could indicate some approach to a general application of the findings.

Internet banking is expected to grow rapidly in the near future. Many financial industry analysts predict the rise of electronic banking will lead to a decrease in paper-based banking, and that future financial transactions will be dominated by electronic banking technologies (ABA Banking Journal, 1999). Internet banking services have changed and expanded significantly since the pioneering days of 1995, when banks such as Wells Fargo in the United States and Advance Banks in Australia launched their first Internet banking and bill pay services. Initially, investments in the Internet related principally to increasing distribution channels and providing information to consumers. Based on the success of those applications, improvements in Internet security and consumer demand, many banks around the world have made major strides by offering full account access and transactions on the Internet. Recent advances in Information Technology (IT) are changing the nature of financial services delivered to consumers, according to Lee and Lee (2000).

Currently, the use of the Internet by organisations in the Middle East, including Jordan, seems to be ineffective, and consumers have typically been late adopters of such technology such as Internet banking. However, there is little doubt that it is necessary for developing countries to learn to cope with the technology developments present in developed countries in order to enhance and improve the quality of their services and hence, be competitive in the global economy.

1.3 Motivation for the Research

The motivations for this research are as follows:

1. This is a new innovation in Jordan, internet banking is a worthwhile topic to study so that the quality of services in the Jordanian banking sector can be enhanced for the future.
2. Internet banking has been widely studied in developed countries. Few studies have been done in developing countries, and it has not been investigated in Jordan.
3. The government sector in Jordan encourages the kinds of studies that could lead to a better life for Jordanians through the acceptance of new technology.
4. Accessibility to data in Jordan is easy, especially for the organisations that would like to adopt this service in the future.
5. What small body of literature there is shows that there is a problem in using the Internet in the Middle East. There is a lack of experience within individuals and organisations, and most of the potential users are unqualified.

1.4 Objective of the Study

This study's aim is to achieve the following objectives:

1. Investigate the adoption and use of the Internet for banking transactions by individuals and organisations in Jordan as an example of a developing country.
2. Identify the perceived problems that individuals and organisations in Jordan encounter while adopting or using these new technologies.
3. Quantify constructs concerning the current state of consumer beliefs and attitudes toward Internet banking in Jordan, and develop and validate the relationships between the factors that drive the adoption and acceptance of such services.

4. Outline strategies, which propose opportunities for individuals and organisations to uncover unseen problems, thereby improving the use and acceptance of Internet banking.

1.5 Problem Definition

It is well known that individuals and organisations in the Middle East are late adopters of the Internet and its applications with regard to Internet banking. Jordan, as well as many other countries have the same problem. There is no study that identifies and explains factors that affect Internet banking acceptance in Jordan. Various causes and the impacts and strategies will be investigated in order to find out possible solutions to making this service more efficient and active in developing countries, especially in Jordan.

Jordan is considered to be an attractive geographical location situated in the heart of the Arabian peninsula and surrounded by Saudi Arabia, Israel, Lebanon, Syria, Egypt and Iraq. This makes it an important commercial and economical link among these countries.

Jordan is now seeking to turn itself into a Trade Free country to encourage investments, so that adopting new technologies will modernise the service industries (banks, e-commerce, e-shopping, e-government, organisations, institutions, shopping centres, etc). All of these services require a strong banking system, and this cannot now be achieved without adopting new technology. Competition among the national and international banks in Jordan is driving the acceptance of Internet banking.

Customers in Jordan are late adopters of the Internet and its applications with regard to Internet banking. It was inferred from the interviews that Internet banking is facing difficulties in Jordan. This is not unique to Jordan, as many developing countries have the same problem (see for example Guru et al, 2003). Some possible issues found in a preliminary investigation already published by the candidate (Al-Sukkar and Hasan 2004a) are:

- Although many customers perceive Usefulness and Ease of Use as benefits of the Internet, they have not transferred this attitude toward the application of the Internet to bank operations. Many bank customers are reluctant to use online banking. Some customers simply don't like the technology at all, and others fear their computer will garble their accounts.
- Lack of banking services through the web due to a limited number of banks using the Internet (there are only three banks in Jordan that offer this service).
- Data and network security, in addition to privacy problems.
- Lack and limitation of government policies, regulations and e-commerce laws, as well as legislation to protect workers and to make the Internet secure.
- Lack of Infrastructure and weak telecommunications.
- Broken and slow Internet connections.
- Lack of Internet awareness, because this service is still widely unaccepted. It is believed that customers are still not fully confident with using ATM cards, visa cards, and telephone banking. Greater awareness could show them the benefits of using new systems and could encourage them to adopt Internet banking transactions.
- Customers are afraid to use Internet banking and purchases through the Internet because they think that any mistake or error could mean a loss of money.

- Connection Costs and high costs of building and managing sites.

As mentioned above, many developing countries have the same problems not only Jordan. Also no study has been undertaken on the factors that affect Internet banking adoption and acceptance in Jordan. From the results of this study, causes, impacts and strategies will be proposed that could make Internet banking services more efficient and active in developing countries, especially in Jordan.

1.6 Research Questions

Recently, many researchers in information system have begun to rely on the theories of technology acceptance to study implementation problems. A major focus of these studies shows how potential users' perceptions of the information technology influences its acceptance by users and hence its adoption by the banking sector. User acceptance of information technology has been a primary focus in the management information system implementation research for the past decade.

This research aims to remedy the lack of studies on Internet banking in Jordan. This research deals with the relationship between attitudes to Internet banking and the actual usage of the Internet delivery channels. There will be a need to raise important academic questions relating to the causal type of this research.

- *What factors influence the adoption by banks, acceptance by customers and usage of Internet banking in Jordan? What is the relative importance of these factors and the relationship between them?*

- *How can the traditional Technology Acceptance Model be used to study these factors in the environment of developing countries? What is the role of social influence (culture and trust), and technology quality characteristics in the acceptance of technology?*

- *How can the findings of this study be used to benefit the banking sector in Jordan and other Middle Eastern countries in similar circumstances?*

- *What findings from the study in Jordan can be used to improve the acceptance of information technology in general, and Internet Banking in particular, in developing countries?*

1.7 Practical and Theoretical Value of this Research

The need to understand how and why technology has or has not been adopted in less-developed countries is important for managers and providers alike. In the technologically developed world, IT adoption is faced by barriers, such as the lack of top management support, poor quality IS design and inadequately motivated and capable users (Kwon and Zmud, 1987). In the developing world, the same barriers appear to be often impenetrable (Danowitz, et al., 1995; Knight, 1993; Mahmood, et al., 1995; Nidumolu and Goodman, 1993). In addition, problems found in the Arab world are attributed to a lack of national infrastructure (Odedra, et al., 1993), capital resources (Goodman and Press, 1995), or government policies set in place to prevent technology transfer (Goodman and Green, 1992). Although there are isolated reports of countries where sufficient resources and government support exist, the technology has failed to be effectively transferred (Atiyyah, 1989; Goodman and Green, 1992; Ibrahim, 1985).

Arab societies represent one of the most complex cultural and social systems in the world. One descriptive analysis of the region has shown that there is a tremendous variation in the use of IT (Goodman and Green, 1992). Egypt, for example, was noticed to have the largest and most internationally oriented computer system in the area, with IT widely used in most governmental agencies and non-governmental organisations. In contrast, most of the 500 million citizens of sub-Saharan Africa have no access to a reliable telephone service or computers (Odedra, et al., 1993). Jordan has a reasonable amount of use of computers in public and private fields, with a major effort to maintain extensive cultural and archaeological archives. Although computers have been viewed in Saudi Arabia as signs of modernisation, there is widespread incompatibility between systems (Atiyyah, 1989). While the uses of IT are varied, the common tie of computer use in the region is one of limited diffusion (Goodman and Green, 1992). Consequently, there will be some beneficial applications of this research to Jordanian banks and researchers in Jordan, or overseas. Some of these practical applications are as follows:

1. The acceptance of Internet banking is a new topic in Jordan, and so it is worthwhile to conduct this study, whose results could be used to improve the banking sector, and enhance the quality of Internet services in Jordan for the future.
2. Undertaking rigorous investigation on technology acceptance could enrich the research centres in Jordan, providing a standard of research that could receive wider recognition. Jordanian research organisations are looking for guidance in creativity and innovation.

3. Helping bank managers to identify factors that influence the adoption and use of Internet banking in order to increase the use of the service, as well as to encourage the general acceptance of the new IT services.

From the practical perspective bank managers and other decision makers in the banking sector want information about how their consumers act and react. Consumer acceptance models are valuable to managers as they help them to organize their learning about consumers by, for instance, segmenting the market environment. Hence, by knowing consumers and their behaviours, banks are able to acquire a better understanding and build a stronger relationship with them. The battle for customers has never been fiercer than it is today. Therefore, banks must understand who their customers are and how they behave. It is only through this knowledge of consumer behaviour that banks can satisfy the demands of consumers today and achieve a competitive edge over their competitors.

Issues of consumer acceptance of information technology have continuing interest in areas of academic research. To address these issues, this study seeks empirical support for the validity of the well-known Technology Acceptance Model in non-Western developing countries such the Jordan. The Technology Acceptance Model is used as a base model to produce a causal model resembling a network of relationships among the constructs of the study. The research tests the relationships between all the variables in the Technology Acceptance Model with the addition of a specific external variable namely social influence (culture and trust) and technology characteristics, which are predicted to be significant in the Jordanian context. In other words, the researcher will be investigating the effect of Culture Dimensions (Hofstede 1980; 1984; 1991; Srite,

Mark David, 2000; McCoy, Scott, 2002), Trust Dimensions (Yang, Zhilin, 2001; Kyu Kim, Bipin Prabhakar, 2000, Paul A. Pavlou, 2003), and the Technology Quality Dimensions (Minjoon Jun et. al., 2001; 2002; Minjoon Jun, Shaohan Cai, 2001; Zhilin Yang, Robin T. Peterson, 2001; Cathy S. Lin, Sheng Wu, 2002). Empirical research will investigate causal linkages between these two relevant sets of constructs, and the TAM constructs of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), and user Attitude Toward Using (ATU), Behavioural Intention (BI) and Actual Usage behaviour (AU).

1.8 The Research Design

Following preliminary investigation in Jordanian banks described in Chapter 2, the research described in this thesis begins with a literature review leading to the expansion of a conceptual model of “technology acceptance”, which has been published as, "An Expanded Technology Acceptance Model (TAM) for late Adopters of E-Commerce" (Al-Sukkar A. and Hasan H., 2005). A further discussion on the research model is also published under the title, "Internet Banking in the Middle East: A Jordanian Study" (Al-Sukkar A. and Hasan H. 2004a), and “The Customers’ Perception of Usefulness and Ease of Use of Information Technology Adopted by Commercial Banks in Jordan” (Al-Sukkar A. and Hasan H. 2004b).

The review of the literature and the preliminary study in Jordan indicates that the Technology Acceptance Model (TAM), which is the basis of much of the research into information technology diffusion, may be useful only if it is extended to include specific issues of culture and trust on the customer side, and more basic elements of quality in

technology usability and service on the bank side (Al-Sukkar and Hasan, 2005, 2004a; b).

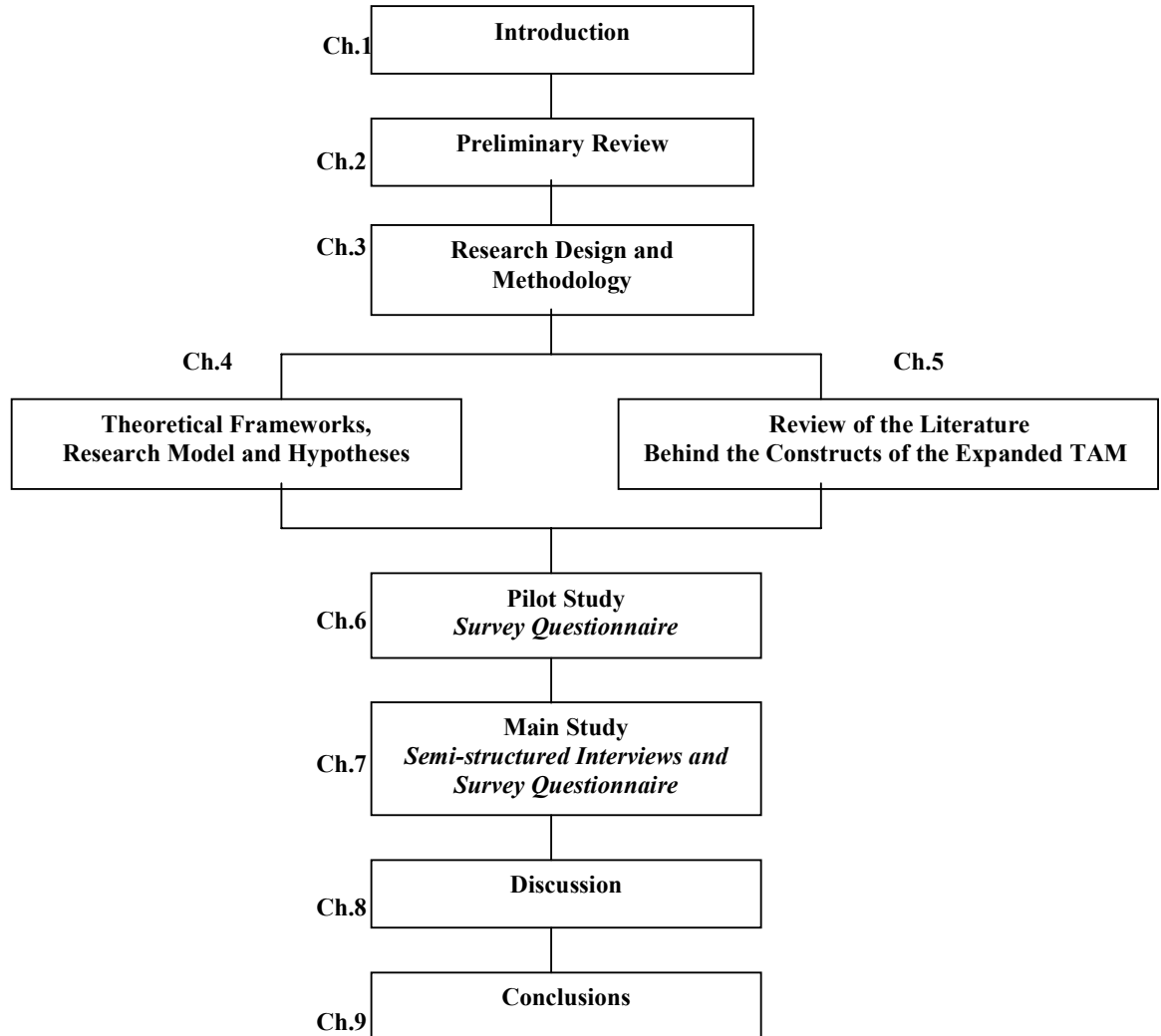
A set of hypotheses is proposed based on the resulting integrative research framework containing all the dimensions of expanded TAM applied to Internet banking in Jordan. The research uses an empirical investigation to test the relationship between TAM variables (PU, PEOU, ATU, BI and AU) and external variables (culture and trust) from the individual's side and technology quality characteristics (a bank's technology quality) from the bank's side. A set of constructs is developed to measure these variables. The resulting survey instrument is first tested on a set of Jordanian residents in Australia and then distributed to an extensive set of bank customers in Jordan.

The responses to the survey are analysed and interpreted in line with the research hypotheses. To complement the results of the survey a series of interviews are conducted with Jordanian bank managers, IT staff and Jordanian academics from Jordanian universities. The qualitative data collected from the interviews are analysed together with the results of the hypotheses testing. The interpretation of all results are presented and explained. Finally, the limitations of the research and suggestions for further research are given.

1.9 Organisation of this Thesis

This dissertation is organised into nine chapters as shown in Figure 1.1.

Figure 1.1 Organisation of this Thesis



Chapter 1 introduces the study and discusses the importance of the study's focus. The first chapter also introduces the research questions that were addressed and provides an overview of the academic and managerial contributions made by the study. **Chapter 2** discusses the results of a preliminary investigation of literature on Internet banking in

both developed and developing countries, in particular, the Middle East in particular the country of Jordan. It then describes the content of some unstructured interviews concerning some current practices and intentions in Jordanian banks with regard to information technology adoption. The results of this exploratory study are used to confirm the choice of approach to the main study. **Chapter 3** presents the research design and the methodology adopted to collect data to test the hypothesis and the research model in this study. The first section describes the development of the research instrument, including operationalisation of the constructs in the model, instrument design and a pilot test of the instrument. The second section describes the experimental methodology for testing the research hypotheses. It covers the experimental design, participants, the Internet banking test, experimental procedure and data entry. Finally, the statistical methods and semi-structure interviews used for data analysis are discussed. **Chapter 4** proposes a Theoretical Frameworks, Research Model and Hypotheses derived from this, which developed from a literature review and preliminary research. **Chapter 5** provides a critical review of the relevant literature relating to the study. **Chapter 6** reports the results of the pilot test of the instrument and the hypothesis tests. In the first section, the results of the pilot test are presented, which involved three main analyses, i.e., a factor analysis for unidimensionality, the corrected-total correlation analysis for construct validity, and Cronbach's alphas for scale reliability. **Chapter 7** presents the data analysis and results of the main experiment test of the study, which involved assumption testing and hypothesis testing. **Chapter 8** presents the discussion of the findings, Finally, **and Chapter 9** the conclusions related to the research hypothesis, and implications related to the research questions of the study and the research problem. This chapter concludes with the contribution of this study, the limitations of the study and future research.

CHAPTER 2. PRELIMINARY STUDY

2.1 Introduction

This chapter discusses the results of a preliminary investigation of literature on Internet banking in both developed and developing countries, in particular, the Middle East in particular the country of Jordan. It then describes the content of some unstructured interviews concerning some current practices and intentions in Jordanian banks with regard to information technology adoption. The results of this exploratory study are used to confirm the choice of approach to the main study.

2.2 Background

The Middle East region consists of many individual nations; most are considered to be in the category of a ‘developing country’. Consumers in such developing countries are typically viewed as late adopters of new technology. Studies of the diffusion of technology into Middle East countries show results that can be generally applied to all developing countries. One report in *PC Magazine - Middle East edition* (1998), for example, showed that the use of the Internet for E-commerce in the Middle East was largely ineffective, and from the preliminary study, this still appears to be the case and is probably so in much of the less developed world. This reluctance to embrace E-commerce is a particularly important issue for the banking industry, where developing countries encounter the need to introduce technologies that are routinely used in the developed world to enhance and improve the quality of their basic services.

Athanassopoulos and Labrouskos (1999) studied Internet banking in Greece. They gave excellent insights into the consumer adoption of Internet banking. Their research findings suggest that customers conceive product-specific attributes such as price and speed differently. Price seemed to be one very important criterion in the adoption of Internet banking. Moreover, speed and the bank's reputation were considered important as well.

Another study, conducted by Daniel (1999), suggested that convenience, increased choice of delivery channels and improved personal control over the banking activities are the driving factors that are accelerating the adoption of Internet banking in the UK and Ireland. Additionally, this study recognized that Internet banking could reduce consumers' banking costs and offer further competitive advantage to banks. One interesting aspect of the study was that respondents stated that Internet banking is unimportant, if it does not offer money transmission services.

In a recent study of Internet banking, Jayawardhena and Foley (2000) demonstrated that time, privacy control and economic issues are among the aspects that customers see important in Internet banking. This study indicated that consumers are becoming busier, and hence, seeking to carry out their banking transactions at times more convenient to them.

In theory, consumer attitudes seem to have an impact on the adoption of Internet banking. In a recent empirical study, Sathye (1999) emphasized several factors that have had an impact on the adoption of Internet banking in Australia. On the one hand, consumers seem to be unaware of the services and benefits Internet banking offers.

Consumers tend to have security and safety concerns about transactions via the Internet. Additionally, Internet banking is considered hard to use among Australian consumers. A majority of Australian consumers perceive Internet banking as not reasonably priced; i.e., using it is considered expensive. On the other hand, Sathye (1999) points out that fundamental barriers to adoption exist (no computer/Internet access, resistance to change). In conclusion, security concerns and lack of awareness were found to be the most paramount factors against the adoption of Internet banking in Australia.

The development of Internet banking depends strongly on the number of consumers acquiring and retaining Internet access (Kingsley and Anderson, 1998). Fisher (2000), for instance, says that each individual's attitude toward technology itself significantly impacts adoption. Banks should pay attention to consumer perceptions and reactions, and try to educate and inform their customers.

Bruhn (1997) says that the typical Internet user wants to be respected as a communication partner, and wants his/her information needs to be satisfied individually, no matter who initiated the communication process. Financial service providers should offer more than just relevant information to become an often-visited portal. Before responding to any Internet offer, customers should work through an intense search process in order to acquire information about products and services, and compare offers; so that incomplete, difficult to understand, or difficult to find product information does not annoy the customer, and cause unwillingness to proceed and complete transactions (Locarek-Junge and Schwaiger, 1998).

Past research revealed that non-Internet banking users perceive online banking as hard to use and relatively expensive, though most of them are unaware of the services and benefits Internet banking offers. In contrast, Internet banking users appreciate accessibility, functionality and low-cost service.

2.3 E-Commerce and Internet Banking in Developed Countries

Even in developed countries, electronic banking is still young, although the acceleration in its adoption has been enormous and, currently, many banks offer their services only through the Internet. Only a few years ago, Smith (1999) found that, even in the West, adoption and acceptance of online banking was slow and only growing by about 2% yearly. Ray (2001) mentioned that only 1.1% of shopping takes place online. However, in the not too distant future, it is expected that every big bank will offer this service through the Internet in one way or another, with an increase in quality of service and performance.

In Western countries, banking customers are increasingly taking advantage of online services, and this phenomenon is regularly studied by researchers. The willingness of consumers to adopt online banking usually depends on how Internet aware they are. Shacklett (2001), for example, describes how at Motorola's Employee Credit Union, 33% of members use the institution's online services, whereas in most credit unions, 10% to 12% of members use online banking. This was put down to the aggressive marketing of their home banking scheme, based on the premise that most of their users

are tech-savvy. The increased adoption of their online banking scheme was attributed to the following:

- Promotional inserts that are included with members' monthly statements.
- Low-cost PC loan promotions.
- Free Internet and home banking classes.
- Technology centres within branches, where the home banking product is demonstrated.

Even in developed countries, many people are worried that their credit card details will be misused or hacked, and are concerned about online fraud, i.e., online web sites that offer imaginary services or items. While encryption technology and security certification should reassure many potential buyers, most are not aware of it, or how it impacts them.

Many strategies have typically been employed to promote online ventures, such as demonstrations of how time and money could be saved by adopting the technology. One bank in Cleveland determined that inconvenience was keeping people from banking online (Anonymous, 2001a,pg 8). To counter that perception, the bank mailed out 118,000 bags of popcorn to its current account customers. The popcorn was accompanied by a relevant message: “In the time it takes you to pop this corn, you could have an established online account”. The campaign was designed to show how easy it was to set up customer access online. In its survey of new online accounts, the number of customers citing, “direct mail” as the mechanism, that brought online banking to their attention increased from 4-6 percent to 10-12 percent. Research at the bank showed that the number of customers coming online was around 3%.

Raymond (2001) discussed online shopping and stated that poorly designed websites and user interfaces were the primary reason that made 30% of customers turn away from online shopping after their first attempt. This could also be relevant for banks. While in real life, you would simply ask for help from an assistant. Online help is far more difficult to get, and usually can only be attained through e-mail, or an actual phone call, which makes the actual process agonisingly slow. Websites that provided audio or visual aids to the buying process were found to be far more successful than those that did not.

There are many advantages in Internet Banking for customers who can use their computer, with telephone modems, to dial in from home or any site where they have regular access to a computer. The services are available seven days a week, twenty-four hours a day and transactions are executed and confirmed almost instantaneously. The range of transactions available is normally fairly broad. Customers can do anything from checking on an account balance to applying for a mortgage.

Banks also see advantages of offering their services on the Internet as follows:

- 24 hours / 7 days weekly client servicing
- The potential to offer more services
- Increased customer loyalty
- The ability to attract new customers
- Increased customer satisfaction
- Reduction in the need for data entry
- Reduction in costs, as the need for physical branches is reduced

Internet banking also has several potential disadvantages, which include:

- Indirect costs to consumers – Internet banking has certain system requirements such as accessibility to computers, computer type, memory, screen resolution and browsers, which prove to be an additional cost to the customer when compared to traditional banking methods, or other online banking services such as ATMs.
- Cash availability - Currently, a customer cannot make deposits or withdrawals when using Internet banking.
- Security – This can also be a disadvantage, as there is the threat from computer hackers and fraudsters.

2.4 E-Commerce and Internet Banking in the Middle East

It is well known that organisations and individuals in the Middle East are late adopters of the Internet and its application to Internet banking. While the growth of Internet use in the Middle East, particularly in Jordan, has been rapid, most of that use centres on e-mail and chatting. Online transactions are minimal, even though some of the largest banks in the area have offered free access to accounts by their customer. Previously, banks limited their ambitions to provide online banking, because of the US government's decision to limit the use of high-level encryption technology to companies in the Middle East. However, these have now been relaxed and several banks in the Middle East such as the Arab Bank, Emirates Bank and the Saudi-American Bank now provide online services.

In a survey of Internet users in the *Middle East quoted in PC Magazine-Middle East edition*, it was found that a majority of respondents unfavourably viewed the idea of

online banking and purchases. It was interesting that rather than being an inconvenience, respondents were particularly concerned that any mistake or error could mean lost money. It was found that even older forms of technology, such as ATM cards, visa cards, and telephone banking, were not widely adopted by the public in Middle Eastern countries.

Some studies of e-mail demonstrate a difference in attitudes between users in developed countries and those in the Middle East. Many employees in the Middle East regularly use e-mail for personal communication, but are afraid that their system administrator can read their e-mails at will. In contrast, a group of directors in the West were being prosecuted for unlawful interception of an employee's e-mails, which led to their dismissal (Anonymous, 2001b). As there are no laws in the Middle East to protect workers from having their e-mails scrutinised, this becomes a major issue for them. While some users perceive it as a good opportunity for fast, paperless business, most users in the Middle East already assumed place a very high value on printed documents, and will not trust the electronic version saved on their hard disks. However, some progress into the global economy is being made among markets in the Middle East, especially in Jordan, where some large banks started to adopt Internet services. Other banks are still at the planning stage, but intend to develop such services, in order to make the banks become more competitive.

Banks that have started this service in the Middle East are:

- The Middle East Bank: www.ebil.co.ae/meb/index.html
- The Union National Bank in United Arab Emirate: www.unb.co.ae
- The Palestine International Bank: www.pibank.com

- The Arab Bank and Cairo Amman banks in Jordan;
- The Housing Bank For Trade and Finance in the process of establishing the service: www.the-housingbank.com
- Emirates Bank Group in United Arab Emirate: www.emiratesbank.com
- Saudi-American Bank in Saudi Arabia.

2.5 Technology Diffusion in the Middle East

The need to understand how and why, technology has, or has not been, adopted for knowledge work in less-developed countries is important for managers and providers alike. In the technologically developed world, information technology adoption is faced by barriers such as, the lack of top management support, poor quality IS design, as well as inadequately motivated and incapable users (Kwon and Zmud, 1987). In the developing world, the same barriers appear to be often impenetrable (Danowitz, et al., 1995; Knight, 1993; Mahmood, et al., 1995; Nidumolu and Goodman, 1993). In addition, problems found in the Arab world are attributed to a lack of national infrastructure (Odedra, et al., 1993), capital resources (Goodman and Press, 1995), or government policies set in place that may inhibit technology transfer (Goodman and Green, 1992). Although there are isolated reports of countries where sufficient resources and government support exist, technology nevertheless, has failed to effectively transfer for less well understood reasons (Atiyah, 1989; Goodman and Green, 1992; Ibrahim, 1985).

One descriptive analysis of the region has shown that there is a tremendous variation in the use of information technology (Goodman and Green, 1992). Egypt, for example,

was noticed to have the largest and most internationally oriented computer system in the area, with information technology widely used in most governmental agencies and non-governmental organizations. In contrast, most of the 500 million citizens of sub-Saharan Africa have no access to a reliable telephone service or computers (Odedra, et al., 1993). Jordan has a reasonable use of computers in public and private fields, with a major effort to maintain extensive cultural and archaeological archives. Although computers have been viewed in Saudi Arabia as signs of modernisation, there are widespread problems due to incompatibilities between systems (Atiyah, 1989). While the uses of information technology are varied, the common tie of computer use in the region is one of limited diffusion (Goodman and Green, 1992).

Al-Sulimani (1994) as well as Bukhari and Meadows (1992), attribute the difficulties in Saudi information technology transfer to technical, organisational and human mistakes. In 1997, problems with information technology transfer in Saudi Arabia could still be seen in areas such as the Saudi construction industry, showing "under-utilization" and "limited" use in this industry (Sash and Al-Amir, 1997, p. 195). Additionally, Saudi Arabia tightly controls the Internet use of its citizens. Sites related to pornography and unacceptable subjects such as atheism have limited access and an effort is made to restrict them (Ambah, 1995). Despite the existing limitations to information technology transfer in the Arab region, there are indications of a growing demand for the services that information technology can bring. As a result of the war with Iraq, demand for defence systems in Kuwait offered billions of dollars in potential information technology sales (Morrocco, 1997). Moreover, demand in the U.A.E. for computer equipment was predicted to grow by 20% per year through the year 2002 (MEE, 1997). Therefore, understanding the factors that contribute to a successful information

technology transfer is crucial for those wishing to tap into these billions of dollars of potential sales. It is with this potential in mind that the Middle East is chosen in our research as a suitable region for testing the TAM outside the developed world.

Certain management strategies could be developed along with a successful transfer of TAM for research in less developed countries. Studies have come to the conclusion that perceived ease of use and perceived usefulness might aid in the development of implementation and training strategies in the Arab world. Yavas, Luqmani, and Quraeshi, (1992) have found that top management buy-in and championship must be ensured before attempting to introduce new information technology in such a highly tribal and communal society like the Arab culture. For example, as face-to-face meetings are an essential part of Arab society, managers should probably not stress the efficiency of face-to-face replacement systems, such as E-mail or groupware. Social and cultural beliefs may be very specific to certain cultures and need to be addressed in training and implementation. Managers should try to work with, rather than against the dominant culture.

It appears that information technology providers can improve their chances of effectively transferring technology by incorporating the cultural meaning of what features would be considered useful or easy to use within the less-developed countries they are targeting. As a result, less-developed countries may begin to better utilize their limited resources through an effective transfer of information technology. As they do so, less-developed countries may start to rely less on developed nations. Furthermore, effective information technology transfers for less-developed countries could enhance

their further movement toward becoming full business partners in the global, IT-based economy.

2.6 What is an Internet Banking Service?

Internet banking provides the customer with an application software program that operates on the customer's PC. The customer then dials into the bank via a modem, downloads, and then operates the programs that are resident on his or her PC.

Information Technology (IT) was primarily employed to automate the back-office of banks in the 1960s (Liao, 1999). This situation had been changed by a move of IT into the front office; thus began the management of information systems (Liao, 1999). Technology was deployed to extend the back-office to front office of the branch and beyond (Llwellyn, 1995). This extension made the banking industry enter a new era, which an explosion of IT applications throughout the banking services sector.

Internet banking service is defined as a banking service that allows customers to access and perform financial transactions on their bank accounts from their computers with an Internet connection to the bank web site, using such Web browser software Netscape Navigator, or Microsoft Internet Explorer (Well Fargo Bank, 2000). Since 1995, the Internet has become less expensive and more available for customers to access information, as well as exchange products and services world wide from their personal computers and modems at home and/or work. The increasing population of Internet customers and demand for payments via the Internet has an impact on banking services provided by many banks, forcing them to extend their banking services to customers on the Internet. Many new Internet-based banking services have been initiated, and

launched into the market and attract both old and new customers to continue their services with banks.

Burr (1996) describes it as an Internet connection between bank and customer in order to prepare, manage and control financial transactions. Internet banking allows consumers to access their bank and personal accounts to undertake banking transactions. At an advanced level, Internet banking is called transactional online banking, because it involves the provision of facilities such as accessing accounts, transfer of funds and buying financial products or services online (Sathye, 1999).

Technology, particularly the Internet, has been a key driving force behind the changes in the banking industry. Internet banking is the newest delivery channel in many developed countries, and there is a wide agreement that the new channel will have a significant impact on the bank market (Daniel, 1999; Jayawardhena and Foley, 2000). According to Nehmzow (1997), Internet banking offers the traditional players in the financial services sector the opportunity to add a low cost distribution channel to their numerous different services. He continues saying that Internet banking also creates a threat to traditional bank's market share, because it neutralizes so many of their competitive advantages in having a traditional branch bank network.

It has been argued that Internet banking is not new to banks or their customers. In some parts of the world, banks have been very reluctant to provide their customers with banking services via the Internet due to security concerns (Brogdon, 1999).

2.6.1 Types of Internet Banking

Currently, there are three basic kinds of Internet banking that are being employed in the marketplace:

Information: This is the most basic level of Internet banking. The bank has marketing information about its products and services on a stand-alone server. This level of Internet banking service can be provided by the bank itself or by sourcing it out. Since the server or Web site may be vulnerable to alteration, appropriate controls must therefore be in place to prevent unauthorized alterations to data in the server or web site.

Communication: This type of Internet banking allows interaction between the bank's systems and the customer. It may be limited to electronic mail, account inquiry, loan applications, or static file updates. The risk is higher with this configuration than with the earlier system and therefore appropriate controls need to be in place to prevent, monitor, and alert management of any unauthorized attempt to access the bank's internal network and computer systems. Under this system, the client makes a request to which the bank subsequently responds. It works on the same principle as e-mail.

Transaction: Under this system of Internet banking customers are allowed to execute transactions. Relative to the information and communication types of Internet banking, this system possesses the highest level of risk architecture and must have the strongest controls. Customer transactions can include accessing accounts, paying bills, transferring funds, etc. These possibilities demand very stringent security.

2.7 Internet Banking in the Arab World

Internet Banking is expected to become a regional norm in the Arab region within three to six years, and those banks that do not respond to the challenge will find themselves at a serious disadvantage.

While the Internet is perceived to represent a new distribution channel for existing banking products and services, it also provides efficiency in transaction costs and offers a way of reaching a broader range of new clients. For the customer, it relieves him of the need to visit the branch to undertake chore banking transactions, offering him instead “anytime, anyplace, anywhere” banking services. Sophisticated customers, who are usually the more profitable clients, value this service most.

There are two main Internet banking models: The integrated approach (clicks and mortar) and the stand alone Internet bank. Most of the Arab banks have opted for the integrated approach whereby they keep their existing brand name and offer Internet banking services as an extension of their branch, ATM and telephone based services. The stand alone Internet bank has been adopted mainly by small to medium sized institutions, or by major banks that do not have a large market share in a particular market or product.

Online banking is still comparatively limited in the Arab region when compared to Europe or the US, yet a few pioneers have emerged, notably in Bahrain, Saudi Arabia, Kuwait, Jordan and the UAE. As most Arab states prepare to enter the WTO, they face deregulation of the financial services sector and the prospect of competition with

multinational banks. Concern about loss of market share has encouraged Arab banks to consider offering online banking services.

There are, nonetheless, a number of constraints in the region, both in terms of social and infrastructure concerns, that must be taken into account when evaluating the development of Internet banking. [For one,] While many Arab banks may be technologically capable of offering e-banking services, the telecommunications infrastructure in some countries remains deficient. Internet penetration in the region is still relatively low, and as such may not encourage the investments required to develop E-Banking.

Consumers in the Arab world are becoming more sophisticated, both technologically and financially. E-banking registration rates among many Arab bank's retail clientele suggest that demand is growing and will continue to rise rapidly along with Internet penetration in the region.

2.8 Internet Banking in Jordan

Banks in Jordan have been involved with Internet Banking services since 2000. However, many Jordanian banks have been striving to compete with other banks by providing better services to meet new Internet Banking service challenges. There has been a high rate of non-performing loans and economic crises on-hand since 2000.

Therefore, the first Jordanian bank (Arab bank) to launch this service in Jordan in May 2000 have taken the lead with its Internet and WAP banking. After that, several banks in Jordan have advertised that they offer Internet banking, such as, The Housing Bank

for Trade and Finance, and Jordan Kuwait Bank. There are two other banks applying to offer these services soon, Cairo Amman Bank and HSBC bank. Since 2000 all of these banks have decided to initiate, explore and attempted to launch, Internet banking services to reduce waiting time, errors, costs and to improve customer satisfaction.

Internet banking services allow customers in Jordan to access and inquire about their own accounts and perform simple frequently asked transactions via the Internet from their computers at work or home, at their own convenience. However, the feedback from customers in terms of satisfaction, complaints and suggestions remain unknown, and needs to be discovered in order to improve or disprove Internet banking services. The remaining Jordanian banks are in the early stages of planning, developing and implementing their first Internet banking service to their customers. Yet, it is difficult to imagine people switching accounts from one bank to another because of Internet banking.

The financial sector in Jordan consists of the Central Bank of Jordan, 23 commercial and/or investment banks, 8 special credit institutions, 27 insurance companies, the Social Security Corporation, a number of provident funds, and foreign exchange bureaus. It is considered to be one of the better financial sectors in the region and generates in total close to 5 per cent of the GDP. One of the weakest points in the financial sector is, with the exception of mortgage lending, the lack of long-term lending and the non-availability of non-secure loans. Another phenomenon that has been coming more and more into focus is the seeming lack of competition among banks. But overall, it is considered a healthy financial environment.

Although reports vary on the number of banks on the Internet, everyone agrees that many banks have an Internet presence and that more are moving online every day. *Online Banking Report*, an independent research report on banking industry trends, put the number of “true” Internet banks in 2004 at three, in the Jordan. *The Online Banking Report* defines true Internet banking as banks that provide account balance and transaction details to retail customers over the web. Of these, one has opened their Internet banking service since the beginning of 2000; the others have followed this bank to adopt this technology.

As for Information Technology and telecommunications, there are 85,000 (1.7 per cent) computers in Jordan, 600,000 regular telephone lines (12 per cent), more than half a million mobile telephony subscribers, 25 licensed Internet service providers, close to 100,000 Internet users and 115 Internet cafés. Jordan is in the Guinness Book of World Records as the highest per capita of Internet cafés.

In the near future Internet banking will most likely take off in Jordan; it will wait for a few years, maybe to coincide with the introduction of third generation mobile telephones. Meanwhile, existing online banking offers only a restricted range of services. Smart cards, which can be used to store and spend cash, are not yet in wide use, particularly in Jordan; so, people still need to go to their banks.

There are several additional reasons why Internet banking will not be a huge success in the near future in Jordan, namely: Internet banking does not offer significant savings to the consumer; it only provides an added convenience. However, this advantage is easily countered by the psychological insecurities felt by the customer when dealing with a

virtual bank — not seeing a huge safe building with vaults and respectable looking guards keeping his/her money safe.

The rationale for banks to provide Internet banking services are summarized and presented as follows: (1) cost savings, (2) increased customers, (3) enable mass customization for e-business services, (4) extend marketing and communication channels, (5) search for new innovation services, and (6) explore and develop non-core business.

2.8.1 Banks that Offer Internet Banking Services in Jordan

This is based on the information gleaned from the list of banks and from the websites of the remaining banks. Of the 24 banks offering traditional banking services, only four of the five to offered their financial services via Internet banking.

Jordan Kuwait Bank (JKB)

This Bank offers its on-line services free of charge and includes Internet banking, SMS and Mobile (cellular) banking and free calls to Phone Bank as well as NetBanker services; all aiming at making its customers and the youth in particular, more aware of the new technology and to help them to take the challenge of the coming more sophisticated innovations.

Arab Bank (AB)

Arab Bank were the first to launch this service in Jordan in May 2000, and they have taken the lead with its Internet and WAP banking.

Internet Banking is an easy, convenient, secure and fast way to bank. One can access one's accounts with them easily, around the clock for the following services:

Personal services (Balance Summary, Instant Statement, Secure E-mail, Deposit Details, Favorite Account Names, Address Change and Cheque Book Order). Payment Services (Scheduled Orders, Internal Transfer, External Transfer and Bill Payment).

The Housing Bank for Trade and Finance (HBTF)

The Housing Bank for Trade and Finance online service is specially designed to utilize The Housing Bank for Trade and Finance services via the Internet from anywhere, and at any time, 7 days a week, 24 hours a day. Through this service, the customer connects to his/her bank accounts through the Internet, and executes his/her financial and non-financial transactions from remote locations. He/she can view balances of all his/her accounts including current, savings, loan, fixed deposit, etc. He/she can also transfer money to a 3rd party, pay his/her utility bills, etc. The operation is simple and secure, and fully in his/her hands, all what he/she needs is his/her Visa electron card and its PIN, beside his/her own PC that is connected to the Internet.

The bank keeps on developing and implementing security enhancements to ensure the integrity of the Internet Banking system. The bank deploys a number of criteria to guarantee the security of its banking information. Listed below are some of these criteria:

- Dual firewalls.
- An independent consultant for security penetration test and reporting.

- The Internet Banking system utilizes 128-bit SSL encryption, the strongest encryption available, so the customer banking information never travels the Internet without encryption protection.
- The security policy is applied by the bank, and the security approach is set by the bank's security division.
- For authentication and authorizing payments, the bank adopts Token technology to give a higher level of security to sign transactions.
- Time Out Limit: Login sessions have a time-out limit of 12 minutes while customers are using the service. When a predefined time elapses without doing any activity, the customers will be disconnected (Logged Out) automatically from the service. If you want to re-enter the site; are required to login again.

Cairo Amman Bank

Cairo Amman Bank aims at strengthening its presence as the leading financial institution in the field of retail banking, by offering distinct services and products. The bank continues to implement qualitative improvements in the domain of information technology. Its 2004 Information Technology plan includes providing new electronic service channels such as Internet Banking. Within the growing globalization concept, the Cairo Amman Bank keeps adopting new and innovative services that widely serve its clients.

HSBC Banks

HSBC is the largest and most widely represented international bank in the Middle East. HSBC Bank Middle East has 29 branches throughout the United Arab Emirates, Oman, Bahrain, Qatar, Jordan, Lebanon, and the Palestinian Autonomous Area, including an

offshore banking unit in Bahrain. This extensive regional coverage is strengthened by another member of the HSBC Group, HSBC Bank Egypt SAE, and by its associated companies, The Saudi British Bank and British Arab Commercial Bank Limited.

Use of the bank web site indicates the acceptance of web site Privacy and Security Statements. The bank's business has been built on trust between customers and the bank. The banks have a commitment to safeguard and keep confidential any information relating to customers' financial affairs. The bank strives at all times to ensure that the information is kept confidential and secure.

2.9 Exploratory Investigation

As the first stage in an extensive study of Internet Banking in Jordan, a series of unstructured, exploratory interviews were conducted in order to examine the factors that appear to affect and influence the adoption of Internet banking in Jordan. Field visits were undertaken to major banks in Jordan between 11/11/2002 and 25/12/2002. The unstructured interviews were carried out in Jordan; the data was collected by five managers of banks that are directly concerned with online banking. The reason for choosing these five banks was because the majority of them was already offered Internet banking; the others will offer this service soon. From these interviews, the researcher is seeking to explore more information about the adoption and the uses of Internet technology in the selected bank.

Key informants at each of the banks and elsewhere will be identified and invited to participate in the study. They will be provided with a plain language statement outlining the study, their expected role/s, and a consent form which will ensure their

confidentiality. The researcher was arranged a time and a place convenient to both himself and the participant/s to conduct an audio-taped individual interview with these participants. It was expected that each interview would be approximately 1 hour in length, while in the reality; the average time was 45 minutes. Participants would be asked to sign a consent form if they consent to be involved in the study. They would be assured that they might withdraw their consent to participate at any stage of the study without repercussion. Interviews with key informants and focus groups would be conducted in a private place mutually agreed to by the participant/s and the researcher.

2.9.1 The Objectives of the Interviews

- Appraise the Internet banking situation in Jordan from primary sources.
- Identify individuals with access to data sources in the banks, i.e., the managers and the IT staff.
- Categorize the banks in Jordan according to the extent to which they use the Internet.
- Identify potential advantages of using Internet banking services in Jordan.
- Identify the perceived difficulties that face the introduction of Internet banking in Jordan.

2.9.2 Brief Description of the Banks and Summary of the Responses

Bank 1. This bank is responsible for monitoring and directing all local banks in Jordan. There is an extensive library in the bank, which contains all the reports and books related to local banks. This library is an important resource for research on Jordanian banks and will continue to be a useful reference for this study. The manager of the

library was interviewed and asked about the role of the central bank in supporting Internet banking. The manager's response was that the central bank's main job is to determine the regulations and the laws that govern the other banks. He added that the central bank is currently studying the feasibility of financial transactions related to Internet banking from different perspectives, such as the legislative responsibility of the bank and the reliability of an electronic signature.

This bank encourages investment operations in the country and the manager believes that the adoption of Internet banking could enhance Jordan's image in the eyes of the surrounding countries.

Bank 2. Interviews at several branches of this banks revealed that the bank has been offering a Internet banking service for 2 years. It is considered the largest bank in Jordan. It was the first bank to adopt ATMs, telephone banking and Internet banking services in Jordan. The effectiveness of these services is reviewed regularly through the results of studies conducted by the bank.

An interview was conducted with the financial consultant of the bank who asserted that the bank is always trying to update all of its services, especially those on the Internet. The bank adopted this procedure after it conducted a long term study on the importance of this service and the benefits it provides to the bank. The bank has many branches throughout the world, and this service is essential to connect all the internal and external banks together to be one unit that is strongly competitive in the global market.

Recently this bank opened a new Islamic branch, with a strategy to take over a large share of the market in Islamic transactions, which is of concern to many people in the area.

Bank 3. An interview with a senior manager of this bank indicated that the bank was planning to adopt Internet services in mid 2003. He stated that the purpose of doing this is to remain competitive with other banks in order not to lose customers.

Bank 4. This bank was very cooperative in providing information relevant to the study. A manager, specializing in computerized systems and supervisory operations, was interviewed several times. The manager indicated that the bank's plan was to adopt Internet services in mid 2003 and is currently conducting in depth studies in order to develop Internet bank services. A free Internet centre has been opened recently in the bank to encourage people to use the Internet.

Bank 5. This bank has recently adopted some Internet services. The project manager was interviewed; she described details of the financial services offered through Internet Banking and the bank objectives regarding competition. This bank was very helpful and welcomed any scientific exchange or any future enquiries.

2.9.3 A Summary of General Concerns for all Banks

All of the bank representatives brought up issues involving both bank and customer concerns about the nature of banking services on the Internet in the following areas:

- Security and privacy
- Ease of use and the level of computer literacy in the country

- The design of the website and cost of maintenance
- The language (Arabic and English)
- The lack of opportunity to access the Internet for many customers
- The cost to customers of using such a service
- The type of information service that should be offered by the banks whether by general advertising, or through answering direct enquiries via the Internet

It was clear that individuals in Jordan are “late adopters” of the Internet and its applications with regards to Internet banking. This is not unique to Jordan, as many developing countries have the same problem (Awamleh et al., 2003). Some possible issues found in a preliminary investigation carried out by Al-Sukkar and Hasan in Jordan (2004a) are:

- Although many customers perceive usefulness and ease of use as benefits of the Internet, they have not transferred this attitude toward the application of the Internet for bank operations. Many bank customers are reluctant to use online banking. Some customers simply don't like "the technology" at all, and others fear the computer will garble their accounts.
- Lack of banking services through the web due to the limited number of banks using the Internet ; there are only three banks in Jordan that offer this service.
- Data and network security in addition to privacy problems, which inhibit the confidence of customers and could lead to major problems for the banks.
- Lack and limitation of Government policies, regulations and E-Commerce laws and legislation in order to protect workers and make the Internet secure.

- Lack of Infrastructure and weak telecommunications.
- Broken and slow Internet connections throughout the region.
- Lack of Internet awareness, because this service is still widely unaccepted. It is believed that customers are still not fully confident with using ATM cards, visa cards, and telephone banking. Greater awareness could show them the benefits of using new systems and could encourage them to adopt Internet banking transactions.
- Lack of general computer skills that continue to make online services widely unacceptable.
- People are afraid to use Internet banking and to conduct purchases through the Internet because they think that any mistake or error could mean loss of money.
- Connection Costs and high costs of building and managing sites.
- Connection costs for customers and high costs of building and managing sites for the banks.
- Specific cultural and religious issues that determine consumer behaviour in the region.

2.10 Implications for the Main Study

The investigatory research described in this chapter has confirmed the significance of the chosen focus for this research, namely, factors influencing the acceptance and use of the Internet for banking transactions by individuals and organisations in developing countries. It also confirms the suitability of Jordan, as a site for the research as it an instance of a country where the adoption of Internet banking is of interest because of its potential national benefit. The results of this preliminary study suggest that the main

study take an approach that uses some adaptation of the existing technology acceptance model.

Encouraging consumers to make more use of Internet banking is becoming a necessity for all countries that want to be successful in the global economy. In developed countries, there has been a long history of research and development into the capability and acceptability of Internet banking products, which are created in, and for, those countries. Davis' (1989) Technology Acceptance Model (TAM) has been the foundation of much of the research into technology diffusion. But almost all of this research has been conducted in the USA and other developed, Western countries. Because of this limitation in the use of TAM, it may be necessary to question its adequacy for research into the adoption of new technologies, such as that of Internet banking, in the circumstances [economic, political, social instability] that exist in less-developed countries, such as those in the Middle East. There is currently no empirical evidence that information technology acceptance models, established in developed countries, can be applied equally well to less-developed countries without some modification to take into account the different context. However, it is not unreasonable to assume that the need for some modification may be the case. A universally applicable model must have relevance across the broad field of information technology applications and should also have a high probability of success in transfers of various technologies across economic and cultural boundaries.

This research examines the appropriateness of the TAM model for the study of Internet banking in a developing country. It examines literature concerning models of information technology adoption and use in developed countries that may need to be

augmented in order to be applicable to less-developed countries. The literature survey and preliminary research results are then analysed to suggest modifications to the Technology Acceptance Model, in order to make it more relevant for research into technological adoption in less-developed, and developing, countries. A modified TAM is then evaluated by an empirical evaluation of the model which involving both quantitative and qualitative data.

In conclusion, the study described in the remainder of the thesis will examine the influence of social issues and technology quality on technology acceptance behaviours. Specifically issues of culture and trust on the customer side, and elements of quality in technology usability and service on the bank side will be added to TAM as external variables (see Table 2.1). These external variables appear to be critical for technology acceptance and usage, which is in turn a crucial factor for deriving information technology (IT) benefits in multinational and transnational organisations and the transfer of technology to developing countries. This dissertation reviews the existing technology acceptance literature and extends Davis' (1989) technology acceptance model to make it more applicable for Internet banking in developing countries. Several models were reviewed before choosing the TAM model, which has been used for some previous studies in Arab countries (e.g., Lowry, G., 2004; Sherif, K. and Hassan, A., 2003; Al-Sukkar, A., Hassan, H., 2005) showing that TAM had a slightly better predictive ability than others. TAM was also chosen as the basis of the model for this study since it is a widely accepted yet practical model of the phenomenon and a robust model of technology acceptance covering the issues that emerged from the preliminary study.

Table 2.1 TAM Extended Variables and Development

THE ITEMS	REFERENCES
Culture	Hofstede, G., 1980,1991; Srite, Mark David, 2000; McCoy, Scott, 2002; Al-Sukkar, A., Hassan, H., 2005.
Trust	Yang, Zhilin 2001; Kyu Kim, Bipin Prabhakar, 2000, Paul A. Pavlou, 2003; Al-Sukkar, A., Hassan, H., 2005.
Technology Quality	Minjoon Jun et. al., 2001, 2002; Minjoon Jun, Shaohan Cai, 2001; Zhilin Yang, Robin T. Peterson, 2001; Cathy S. Lin , Sheng Wu, 2002; Al-Sukkar, A., Hassan, H., 2005.
Perceived Usefulness	Davis, 1989, 1993; Davis et. al., 1989; Lowry,G., 2004; Sherif, K. and Hassan, A., 2003; Al-Sukkar, A., Hassan, H., 2005.
Perceived Ease of Use	Davis, 1989, 1993; Davis et. al., 1989; Lowry,G., 2004; Sherif, K. and Hassan, A., 2003; Al-Sukkar, A., Hassan, H., 2005.
Attitude Toward Using	Yogesh M., Dennis F., 1999; Taylor and Todd, 1995; Lowry,G., 2004; Sherif, K. and Hassan, A., 2003; Al-Sukkar, A., Hassan, H., 2005.
Behavioural Intention to Use	Yogesh M., Dennis F., 1999; Michael G. Morris and Andrew Dillon, 1997; Paul A. Pavlou 2003; Lowry,G., 2004; Sherif, K. and Hassan, A., 2003;Al-Sukkar, A., Hassan, H., 2005.
Actual Use	Davis, 1989, 1993; Davis et. al., 1989; Lowry,G., 2004; Sherif, K. and Hassan, A., 2003; Al-Sukkar, A., Hassan, H., 2005.

Generally. TAM has been found to be parsimonious, valid and able to explain a reasonable amount of variance in behavioural intention and/or usage. A number of studies have found a direct link between the two beliefs of ease of use and usefulness and behavioural intention to use and/or usage (Kiel, et al., 1995; Adames, et al., 1992; Davis, 1989). Subsequent studies tested a mediating role of attitude between the relationship of beliefs to behavioural intention (Davis, et al., 1989) and a relationship between attitude and behavioural intentions (Szajna, 1994). The TAM used in this study includes the mediating construct of attitude.

CHAPTER 3. RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents a detailed description of the research design and methodology used in this study. The purpose of this study is to gain a deeper understanding of the new role of Internet banking, not in developed countries where it originated, but in a developing country where circumstances are quite different. There are several factors that influence consumers of Internet banking websites, and enhance customer service in Internet banking. This research investigates the adoption of Internet banking in Jordan, a country of the Middle East, and aims to develop a framework of the variety of factors that are likely to be involved in its acceptance by users. Consideration of the research design needs to take into account the different demands of collecting, analysing and interpreting data under these circumstances. Following a general discussion of possible research methodology, this chapter justifies the decision to adopt a mixed method approach for the study, which includes the collection and analysis of both quantitative and qualitative data.

Any methodological consideration for the development of a new framework should regard the nature of the investigated phenomenon first, and thereafter address the question of which method may be adequate to describe, explain or understand this phenomenon. Although abstract methodological and epistemological level considerations of the concepts alone cannot answer questions like, which method should be used for the investigation of which phenomena, and, should qualitative and quantitative methods be integrated in this endeavour? it is important to begin there. It is

then important link methodological and substantial considerations to each other by examining the usefulness of methodological concepts with the help of examples from research practice, as will be done here. One aim of this study will be to investigate the appropriateness of mixed methods for this type of research, particularly the use of "triangulation", as shown in Figure 3.1; in order to permit a combination of qualitative and quantitative methods for the research, following the lead of others in sociology, especially in sociological life course research (Maxwell, 1998; Flick, 1992; 1998; Fielding G. and Fielding L., 1986; Denzin, 1978; Campbell and Fiske, 1959).

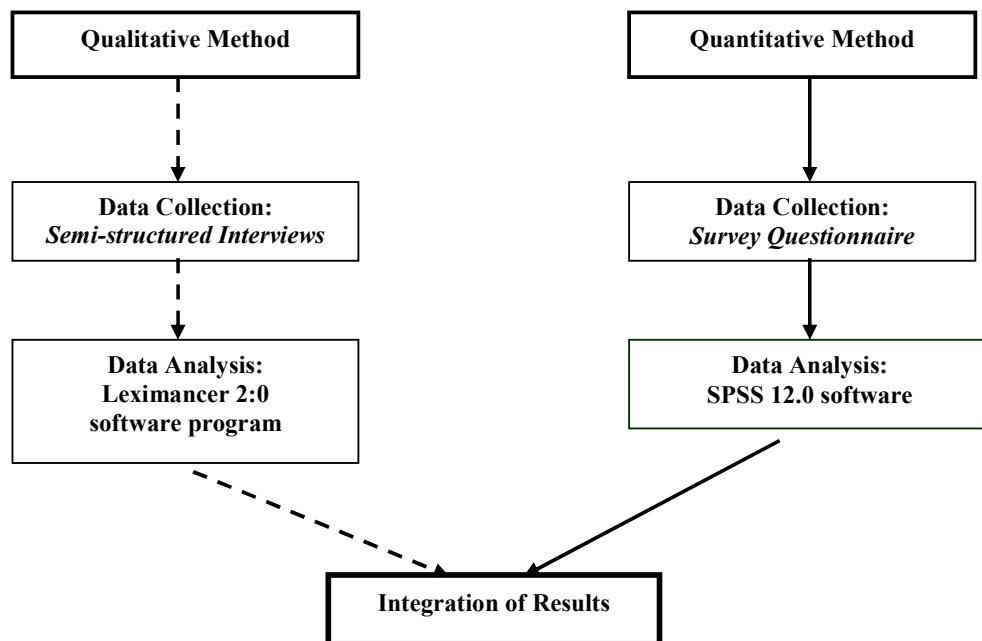
This chapter discusses the research paradigm and associated concepts used in the study before presenting an overview of the mixed methodology approach used. The chapter then goes into detail about the data collection methods including the Semi-Structure Interview and survey techniques, which are used in the study. This including the data analysis methods, which include content analysis for qualitative data using the Leximancer 2:0 software program to sophisticated qualitative analyses of textual data in the Semi-Structured Interviews, and statistical methods, including regressions and analysis of variance (ANOVA), for the survey data. The quantitative data collected to assess research model using SPSS for 12.0 Windows. This tested hypotheses associated with the research model whose constructs were included in the survey questionnaire. Triangulation of the results of both methods is used for the discussion and drawing of conclusions in the concluding chapters of the thesis. A concurrent research approach (Figure 3.1) was used to confirm and corroborate the findings from each approach.

Further, stepwise multiple regressions were used to determine the best model of Internet banking utilisation in Jordan. Descriptive statistics was used to summaries the

demographic variables of respondents and to provide a guide for conducting multivariate analysis (Sekaran, 1992).

A data analysis method and the survey questionnaire for analysis with multiple and simple linear regressions as well as ANOVA were used to evaluate the research model using SPSS for 12.0 Windows, and the hypotheses associated with the research model.

Figure 3.1 The Structure of the Mixed Method approach for this Research



3.2 Theoretical Paradigm

It is a good start for researchers if they acknowledge their ontological and epistemological perspectives, since this can directly affect the conduct of the study (Deshpande, 1983). Miles and Huberman (1994) stated clearly that it is a good way for researchers to clarify their preferences. Therefore, it is important to sets out the paradigm that has framed this study. The question that comes to mind first is, what is a paradigm? A paradigm is a framework, or a set of, “basic beliefs” (Guba and Lincoln, 1994) that researchers need to get ideas about the nature of reality, to identify the relationship between variables and to specify appropriate methods for conducting particular research (Guba and Lincoln, 1994).

Kuhn (1970) defines a paradigm as, “a set of values and techniques which is shared by members of a scientific community, which acts as a guide or map, dictating the kinds problems scientists should address and the types of explanations that are acceptable to them” (p.175). In simple terms, a paradigm is a set of prepositions that explain how the world is perceived, and it contains a world view, a way of breaking down the complexity of the real world, telling researchers and social scientists in general what is important, what is legitimate, and what is reasonable (Patton, 1990; Sarantakos, 2002). Paradigms allow researchers to identify the relationship between variables and to specify appropriate methods for conducting particular research (Guba and Lincoln, 1994; Lincoln and Guba, 2000). Five types of paradigms such as positivism, realism, post-positivism, critical theory and constructivism have been identified for social science research (Sarantakos, 2002; Lincoln and Guba, 2000; Guba and Lincoln, 1994). The basic principles of paradigms are methodology, epistemology and ontology (Neuman, 2003; Mulaik and James, 1995; Guba and Lincoln, 1994). Ontology is a

theory of being, and is concerned with what exists, and the form and the nature of the world. It is about what kinds of things do and can exist, the condition of their existence, and the way they are related. Epistemology is a theory of knowing, or how we obtain knowledge of external reality. It is concerned with origin, nature and limits of human knowledge, and how things can be made known to the researcher. Methodology concerns how the reality at issue is investigated. These principles are usually interconnected, since the researcher who adopts a position on one of the principles is constrained on the position that may be taken on the others. There are many paradigms for social science such as Positivism, Realism, Postpositivism, Critical Theory and Constructivism.

Buttery (1991) argued that Positivism forms the basis of natural science and that this has influenced scholars of management as a rational system. The Positivism paradigm assumes that universal laws and truths drive one reality. Researchers adopting this paradigm are assumed to be objective and independent. Problem solving under this paradigm starts with formulating hypotheses that are subjected to empirical testing through quantitative methods (Buttery, 1991). Quantitative methods provide an objective, value free and unambiguous interpretation of reality (Guba and Lincoln, 1994). However, because Positivists consider reality to be apprehended able and measurable with zero error (Sweeny, 2000), and use exact and rigorous measures (Neuman, 2003), this paradigm is not suitable for this research as it deals with variables in a complex, social, real life experience (Perry, et al., 1997).

Critical theory assumes a reality formulated over time by social, political, cultural economic, ethnic, and gender forces (Mulaik and James, 1995). The researcher and the

tested object are associated in a certain way so that the researcher tries to change the world where respondents live, making them more informed (Perry, et al., 1997). However, as this research seeks to understand the relationship between Internet banking and the adoption of this technology, rather than change the values of bank employees and customers, critical theory is not a suitable paradigm for this research.

Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in (Crabtree, et al., 1993). In another words, it assumes that the realities established by the researcher and the respondents are under investigation (Crabtree, et al., 1993). The researcher should participate with the world being investigated to explore the research respondents' perception of reality. However, as this research considers some measurable and objective concepts, this paradigm will not be suitable for this research.

Post positivism is another paradigm often adopted in the social sciences. It was developed to overcome the major disadvantages of Positivism (Guba and Lincoln, 1994), by arguing that in spite of the existence of the real world that needs to be discovered, the world is independent of researchers and open to different perceptions (Easton, 1998). These perceptions are not reality, but merely windows to obtaining a better picture of that particular reality. In other words, Postpositivism emphasises the importance of multiple measures and observations, each of which may possess different types of errors. Triangulation needs to be applied across these multiple erroneous sources to get a better picture of what is happening in reality (Trochim, 2003; Sweeny, 2000; Godfery and Hill, 1995).

Under the Post positivism paradigm, researchers tend to emphasise deductive logic in which research is influenced by theory/hypothesis and reflected in a predominantly formal writing style (Onwuegbuzie, 2002), as utilized in this research. This paradigm also emphasises the objectivity of the researcher by triangulating across multiple fallible perspectives, while acknowledging the probability of bias (Trochim, 2003; Guba and Lincoln, 1994). Thus, this research is seen to lie within the Post-positivist paradigm.

3.3 Qualitative Versus Quantitative Research.

Quantitative and Qualitative Methods are two broad approaches to research, and are two research approaches often used in social science research studies, including Information Systems. While quantitative research involves numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect, qualitative research on the other hand involves non-numerical examination and interpretation of observations, for the purpose of discovering the underlying meaning and patterns of relationships. Qualitative research emphasise the processes and meanings that are not rigorously examined or measured, in terms of quantity, amount of intensity or frequency. In contrast, quantitative studies emphasise the measurement and analysis of casual relationships between variables, not processes (Casebeer and Verhoef, 1997; Zikmund, 2000; McDaniel and Gates, 1996; Miles, 1994; Easterby-Smith, et al., 1991; Bellenger, et al., 1989).

In quantitative research, variables and relationships are the central idea (Neuman, 2003). Quantitative research is useful in providing detailed planning prior to data collection and analysis, because it provided tools for measuring concepts, planning design stages

and for dealing with population or sampling issues. In addition, the quantitative research approach utilises a deductive model in testing the relationship between variables and to provide evidence for or against a pre-specific hypotheses (Neuman, 2003).

To begin with, this study presents a comparison of the characteristics of these two approaches in order to determine their importance for this research.

Essentially, the qualitative research of stage one was used for induction (McDaniel and Gates, 1996; Wimmer and Dominick, 1994; Bellenger, Bernhardt and Goldtucker, 1989). That is, the qualitative approach to data collection discovers information from the perspective of the interviewee about phenomena, such as behaviours and attitudes, that are not directly observable, that is, 'in someone else's mind' (Patton, 1990, p. 278). The findings of the qualitative research are not used to test a theory and make generalisations about a population; but rather, to build a theory for further testing, through quantitative methods (Aaker, et al., 2001; Marshall and Rossman 1995; Maykut and Morehouse, 1994; Easterby-Smith, et al., 1991).

This induction characteristic of qualitative methods was a requirement for the first stage of this research for two reasons. **Firstly**, Internet banking relationships in an Internet environment are a relatively new topic in the academic information system (IS) and management information system (MIS) literature. In the early stages of theory development, where phenomena are not well understood and the relations between phenomena are not known, prematurely used quantitative research methods can lead to inconclusive findings (Denzin and Lincoln, 1994). A qualitative method was required to explore this complex topic in depth with experts who have studied and/or applied their

knowledge practically to generate ideas rather than to evaluate ideas (Crimmons, 1988). That is, qualitative research allowed for flexibility in the gathering of information and a Semi-Structured exploration of issues in a less structured format, with a smaller number of respondents than quantitative methods (De Ruyter and Scholl, 1998; Bellenger, et al., 1989). This information will be used to assist in the building of a theory that will be tested through quantitative methods in the next method of this research. **The second reason** for using a qualitative method was the type of information this research intended to gain in the first stage of data collection. The depth and detail of qualitative data required to understand complex phenomena can be obtained only by getting psychologically close to the phenomena under study. ‘The closer the researcher gets to the phenomenon, the clearer it is understood’ (Carson and Coviello, 1996, p.55). Qualitative research allowed me to gain semi-structured understanding of underlying reasons and motivations and to obtain ‘rich’, ‘real’, and ‘deep’ information with ‘non-statistical’ data analysis (Deshpande, 1983, p.103). In summary, the complexity of the research subject warranted a semi-structured exploration that is only possible through qualitative research in the first stage of this research.

Quantitative research will be used in the second stage of this research because its larger samples and statistical significance levels provided statistical generalisation (Yin 1994) of the findings to a population (Zikmund, 2000; Neuman, 2003). Qualitative and quantitative research methods are used in a complementary fashion in this research (Zikmund, 2000; De Ruyter, 1998; McDaniel et al., 1993; Easterby-Smith, et al., 1991; Bellenger et al., 1989; Wimmer and Dominick, 1983). The qualitative research will enable me to gain extensive ‘in-depth’ and ‘real’ information on how Internet banking

will be adopted and used by the Jordanian population. Then this theory will be tested by using the quantitative research method.

3.4 Exploratory Versus Explanatory Research

Exploratory research is conducted to provide a tentative understanding of a research problem, and should be used as input to further research (Malhotra, 1999). Explanatory research aims to provide evidence of cause and effect relationships (Aaker, et al., 2001). Typically, the researcher manipulates the independent variables of interest and tries to control the influence of other variables (Davis and Cosenza, 1993). The research presented in this thesis consists of an initial exploratory phase followed by an extensive phase of explanatory research.

The exploratory research included, firstly, a literature review about Internet banking in Jordan and in the world at large, secondly, a literature review about the theoretical technology acceptance models and then, thirdly, unstructured interviews with some banking sectors in Jordan to gain insights about the research problem and discover the most effective factors in relation to Internet banking use and adoption by individuals and organizations in Jordan. This exploratory investigation was presented in Chapter Two.

In the explanatory phase of the research, an expanded Technology Acceptance Model (TAM) model is tested using qualitative and quantitative methods, as will be explained below. In this model the independent variables are culture and trust on the consumer users side, and on the bank side, the quality of the online system bank. The dependent

variables are all variables from TAM: perceived usefulness, perceived ease of use, attitude toward using and behavioural intention to use the Internet banking.

3.5 The Mixed Method Approach to Research

The metaphor of triangulation in a mixed method approach is used in such a way that the results of qualitative and quantitative methods are regarded as analogous to the results of the single measurement operations. Normally, in describing different aspects of the same phenomenon or even different phenomena by two methods, one would naturally expect different results. In a true mixed method approach, qualitative and quantitative methods have to be combined in order to produce sound sociological explanations. Triangulation should not be considered as a single unique method, but as a metaphor with different possible meanings that can be related to a variety of different methodological problems and tasks. The form of "between-method triangulation" quite often is used in sociological life course research, whereby qualitative and quantitative data are collected and analysed separately and the results are related to each other. If qualitative and quantitative methods are combined in this way to answer a specific research question, in principle, one of the following three outcomes may arise (Erzberger and Prein, 1997; Erzberger, 1998; Kelle and Erzberger, 1999):

1. Qualitative and quantitative results may *converge*: in this case these results lead to the same conclusions.
2. Qualitative and quantitative results may relate to different objects or phenomena, but may be *complementary* to each other and thus can be used to *supplement* each other.
3. Qualitative and quantitative results may be *divergent* or *contradictory*.

The construction of a multi-method design requires that methodological tools are selected in regard to theoretical assumptions about the nature of the social reality under investigation. Quantitative and qualitative methods usually provide information on different levels of sociological description: quantitative analyses show phenomena on an aggregate level and can thereby allow the description of macrosocial structures. Although qualitative data may also relate to phenomena on a macrosocietal level, their specific strength lies in their ability to lift the veil on social microprocesses and to make visible hitherto unknown cultural phenomena. In order to formulate adequate sociological explanations of certain social phenomena it will often be necessary to combine both types of information (Creswell, 2003; Kelle and Erzberger, 1999; Tashakkori and Teddlie, 1998; Mason, 1994; Sieber, 1982; Strauss, 1987; Bryman, 1988, 1992).

A certain understanding of triangulation, e.g. triangulation as providing different, complementary perspectives, may be well suited to gaining a better insight into the process of method integration and of its results. For other projects, another understanding (triangulation as determining the position of a point with two measurement operations) may fit better. What these examples from research practice show, above all, is that it is not sufficient to discuss the integration of qualitative and quantitative methods exclusively on the basis of epistemological considerations and methodological models (whether centred on "complementarity", or "mutual validation"), but that methodological reflections on the integration of methods have to be based on theoretical considerations about the social processes under investigation. Thereby one must pay attention to the nature of social structures and social actions in the empirical field, and to the ways that structures and actions are related to each other.

In this research, it is assumed that when investigating human behaviour and attitudes, it is most fruitful to use a variety of data collection methods. By using different sources and methods at various points in the evaluation process, the evaluation can build on the strength of each type of data collection and minimize the weaknesses of any single approach. A multi-method approach to evaluation can increase both the validity and reliability of evaluation data, and may also lead evaluators to modify or expand the evaluation design and/or the data collection methods (Patton, 1990).

Using more than one method to study the same phenomenon can strengthen the validity of the results. This approach is most often mentioned as the main advantage of the mixed method approach: improved instruments for all data collection approaches, and an incremental understanding of findings. A typical design might start out with a qualitative segment such as an interview, which will alert the researcher to issues that should be explored in a survey of participants, followed by the survey, which in turn is followed by semi-structured interviews to clarify some of the survey findings. A mixed method approach may also lead evaluators to modify or expand the evaluation design and/or the data collection methods (Miles and Huberman, 1994; William, R. Shadish, 1993; Jennifer, et al., 1989). On the practical level, there are four issues, which can affect the choice of method, such as credibility of findings, researcher skills, costs, and time constraints (Frechtling and Sharp, 1997). Straus and Corbin (1990) explain that qualitative research is useful for giving, “intricate details of phenomena that are difficult to convey with quantitative methods” (p. 19).

One can find a considerable amount of writing about the integration of qualitative and quantitative methods by "triangulation" (Bryman, 1988; 992; Creswell, 2003; 1994;

Erzberger, 1998; Erzberger and Prein, 1997; Denzin, 1978; Flick, 1992, 1998; Fielding, L. Fielding, G., 1986; Kelle and Erzberger, 1999; Tashakkori and Teddlie, 1998). These range from rather abstract and general methodological considerations to practical guidelines for mixing methods and models in a single research design as illustrated in Figure 3.1. Studies, such as those by Sieber (1982), Strauss (1987), Bryman (1988, 1992) and Mason (1994) demonstrate that the integration of both quantitative and qualitative methods provides a deeper insight into research findings and so is appropriate here.

The data collection methods employed in the main phase of the research were both survey questionnaire and interview. A mixed research design including quantitative and qualitative methods are used to explore the research objectives. and to the integration of both quantitative and qualitative methods provides a deeper insight into research findings.

Because the nature of the study is both exploratory and explanatory, data collected through multi-methods and multiple sources was a necessity, in order to add rigor to the study (Sekaran, 2000; Mingers, 2001). It is asserted that a multi-method approach in IS research study would produce more reliable and richer research results (Sekaran, 2000; Mingers, 2001). Because the present study on Internet banking is applied in Jordan, therefore this mixed approach aims to provide a complete picture of Internet banking adoption and usage by Jordanian Internet banking consumers.

While a semi-structured interview method was used with bank managers, a large-scale questionnaire survey was used with sample respondents of bank customers. The survey

method was to provide a broad picture of the phenomenon, while the qualitative method was intended to cover the same ground in greater depth, and to confirm the survey results.

Each of the two categories of data collection and analysis, qualitative and quantitative, will now be discussed.

3.5.1 Qualitative Methodology

In more recent years, scientists have been challenged to explain phenomena that defy measurements. The inability to quantitatively measure some phenomena and the dissatisfaction with the resulting measurement of other phenomena have led to an intense interest in using other approaches to study particular human phenomena. This demand for a special approach led to the qualitative research (Streubert and Carpenter, 1999, p.1).

A qualitative research approach is advantageous when little is known about a phenomenon. Also, when the investigator suspects that the present knowledge or theories may be biased or when the research question pertains to understanding or describing a particular phenomenon/ event about which little is known. This research approach is holistic. Understanding, explaining, and developing theory is inductive through documenting, describing and identifying the relationship between concepts and creating theoretical explanations that explain reality, which will lead to theory development using rich description, data synthesis, and abstraction (Morse and Field, 1995; Morse and Field, 1996). In other words, qualitative research is used to describe how groups of people live, or how they cope with their daily lives. This will lead to

providing a rich description that may enable the reader to understand and make sense of reality. It provides a window into the worlds of other people, providing an empathic understanding of the world (Morse and Field, 1996).

The qualitative work in this research will complement the quantitative survey work, which may not allow the researcher to gain the full picture or the portrait about the interpretation of the participants. Qualitative research draws on multiple methods that respect the humanity of participants in the study (Marshall and Rossman, 1999).

3.5.1.1 Interview Methods

Face-to-face Interviews: Face-to-face interviews are one of the most effective procedures used by an interviewer to determine his/her needs from the interviewee. There are three types of interviews, namely, structured, semi-structured, and unstructured. Interviews can be conducted individually (one to one) or as a group. The reliability and validity of the data collected from the interview varies with the type of interview employed, as well the experience of the interviewer. Any potential participants to be interviewed should be carefully selected, because random selection is not usually recommended (Doyle, 2004; Gubrium and Holstein, 2002; Seidman, 1998; Steinar, 1996).

Structured Interviews: These are a series of questions presented to the participant for his/her responses. Frey and Oishi (1995) defined structured interviews as a purposeful conversation in which one person asks prepared questions (interviewer) and another answers them (respondent). Structured interviews are very inflexible, because the

number of possible responses is often limited and participants may be forced into giving responses, which do not reflect their true feelings about an issue (Steinar, 1996).

Semi-structured Interviews: Semi-structured interviews often have an initial question followed by probes. These types of interviews are favoured widely by researchers. Also, it is more useful for the main study than the pilot study. These types of interviews are often based on the knowledge of, and/or the assumption that the respondents have had a particular experience they can elaborate upon. In these types of interviews, the situation has often been analysed before the interview. Therefore, the researcher is seeking additional information. The interview guides and specifies the topics for which information is sought. The interview focuses on the respondent's subjective experiences. This allows the respondents to describe in detail the situation, as it is meaningful to them. Moreover, it allows the interviewer to freely probe and ask follow-up questions. This kind of interview should be used with people who have a high management status such as bank managers. Since these people have limited time, the researcher should prepare and know what he/she wants to know from the interviewee. The list of the questions should be handy to the researcher in the interview (Doyle, 2004; Gubrium and Holstein, 2002).

Unstructured Interviews: an unstructured interview is often seen as an informal interview that is not structured by the standard list of questions. Field-workers are free to deal with the topics of interest in any order, and to phrase their questions as they think is best suited (Nichols, 1991). An unstructured interview is particularly useful for a preliminary study to in order test what the responses might be to a particular issue (Doyle, 2004; Seidman, 1998). In this phase, the researcher asked bank managers open-

ended questions. Although the researcher knew what he wanted, the open-ended questions enabled the researcher to obtain what he was looking for. The interview was conducted with the bank managers of five different banks that are directly concerned with online banking.

This research utilises an unstructured interview for the preliminary and a semi-structured interview for the main study. Each succeeding semi-structured interview for the main study became more focused in the later stages, as the interviewer was able to touch on particular issues that were raised in preceding interviews (Dick, 1990). The researcher uses each interview for collecting the information required from the respondents and in explaining the data results (Carson, *et al.*, 2001; Nair and Riege 1995). The structured and semi-structured interviews are more appropriate than other methods because they are an efficient mechanism for data analysis after each interview, and a way of deciding when to stop collecting data.

While this dissertation mainly focuses on analysing quantitative data, it also utilizes qualitative data. It has been argued that the linking or integration of these provides a deeper insight into survey results (Mason, 1994; Bryman, 1988, 1992; Strauss, 1987; Sieber, 1982). In order to achieve the aims of the study, the researcher uses both quantitative and qualitative methods, built into a two-stage research design.

The qualitative stage is unstructured interviews with five Jordanian banks. Managers who have a relationship with Internet banking were selected to be interviewed to get information about the technology in the bank for the preliminary study. 16 semi-structured interviews with banks manager, IT experts, and the Department of Social

Science from universities in Jordan will be interviewed to get data about the culture and trust in bank.

3.5.1.2 Validity and Reliability of the Interview Research

Individual interviews are designed to obtain information regarding personal perceptions and experiences, i.e. the individual's report is accepted as a valid representation of that individual's perceptions.

This next section examines the issues of achieving validity and reliability in the interviews in this research. Several checks were built into the research design for this research to provide validity and reliability (Kvale, 1989). These in-built checks and controls for qualitative research can be summarised under four tests of the research design: validity and reliability (Yin, 1994).

Validity refers to the formation of suitable operational measures for the concepts being investigated (Emory and Cooper, 1991). Interviewing achieved construct validity through three tactics. Firstly, triangulation of interview questions was established in the research design stage by two or more carefully worded questions that looked at the subject matter from different angles. Secondly, the interview method contained an in-built negative case analysis where, in each interview and before the next, the technique explicitly requires that the interviewer attempt to disprove emerging explanations interpreted in the data (Dick, 1990). Finally, the flexibility of the mode allowed the interviewer to re-evaluate and re-design both the content and process of the interview program, thus establishing content validity.

Reliability refers to how consistently a technique measures the concepts it is supposed to measure, enabling other researchers to repeat the study and attain similar findings (Sekaran, 2000; Emory and Cooper, 1991). This research secured reliability through four tactics. Firstly, reliability was attained through the structured process of interviews. Secondly, reliability was achieved through organising a structured process for recording, writing and interpreting data. Thirdly, research reliability can be achieved through comparison of this research's findings between its two researchers. Having 2-3 people in each interview is not normally done in the interviewing technique because each of the interviewees is in effect a triangulating mechanism of information provided by previous interviewees, as Dick (1990) points out. Finally, the use of a steering committee to assist in the design and administration of the interview program is another way that reliability can be achieved (Guba and Lincoln, 1994). If a number of the members of the committee agree about a phenomenon, then their collective judgment is relatively objective. The researcher consulted with his supervisors about the results, acting as the steering committee to assist in the design and administration of the interview. That is, they acted as 'sounding boards' for the interviewee's interpretations of the data and my own. Thus, the reliability was addressed as best it could be.

In summary, tests of validity and reliability were applied to the first stage of this research. The next section details how validity and reliability were also achieved through careful planning and interview processes.

3.5.1.3 Interview Method in the Main Study

As a data collection tool for research, an interview can be used for three purposes. It can be used as an exploratory device to help identify variables and relations; it can be the

main instrument of research; and it can supplement other data collection methods where it can be used to go deeper into the motivations of respondents and their reasons for responding as they do (Kerlinger, 1986). The present study conducts interviews for this third purpose: to supplement the data gathered through the questionnaire survey. While the questionnaire method is appropriate for collecting data on key informants/experts' experience of the new technology such as Internet banking in the bank sector in Jordan in order to understand the importance factors that drive the development and classification of consumer behaviour in relation to the new banking technology in the banking sector in Jordan, it would not provide information about the key informants/experts', or about his or her position in his/her organization. All the questions about the use of the Internet and its applications, or why they do or do not of Internet banking. Personal interviews, on the other hand, allow key informants/experts' to supply answers to semi-structured interview questions based on their expertise of Internet banking of detail that would make clear to context, motivation and consequences of the information adopt and use this technology.

A copy of the interview cover is included in Appendix III in English as well as in Arabic. A cover letter explaining the purpose of the interviews has been designed; it also has a statement guaranteeing the confidentiality of the key informants/experts', and a statement of how the research has been reviewed by the Human Research Ethics Committee (HREC), as is required by the University of Wollongong (UOW). The researcher was sent an acknowledgment e-mail letter to all participants to thank them for their participation and, a copy of the summary report would be forward to key informants who asked for and provided their address.

For the interview validity and reliability and because the majority of the key informants converse in Arabic, the interview study would be in Arabic. 16 key informant interviews would be conducted with bank managers, academics and IT expertise. After inviting the key informants and writing down all the interviews, it must be translated from the Arabic version to the English version. The pre-test version was sent to two bilingual Jordanians (Arabic/ English people) to ensure that the two versions of the interviews matched as closely as possible. The English version was translated into Arabic by a bilingual Jordanian, and then translated back to English by another bilingual Jordanian working independently. The interviews for both language versions were compared, in order to resolve any differences. The final versions were then used for the main study.

Although there is no widely agreed upon sample size for the interview studies, the sample size around 16 key informant interviews was conducted, while Spector (1992) simply recommends a small sample. The interview studies were carried out on a representative sample randomly chosen from IT experts', Jordanian bank managers, academics and elsewhere for the interviews study

Key informants at each of the banks and elsewhere would be identified and invited to participate in the study. They would be provided with a plain language statement outlining the study, their expected roles, and a consent form to ensure their confidentiality. The researcher arranges a time and a place convenient to both himself and the participant(s) to conduct an audio-taped, individual interview with these participants. It was expected that each interview would be approximately 1 hour in length. Participants would be asked to sign a consent form, if they consent to be

involved in the study. They would be assured that they might withdraw their consent to participate at any stage of the study without repercussion. Interviews with key informants and focus groups would be conducted in a private place mutually agreed upon by the participant/s and the researcher.

The research participants were included key informants selected from Jordanian banks and IT experts who have experience and knowledge about the use of Internet banking system quality technologies. Academic key informants are expected to have knowledge about the Jordanian culture and its implication on the trust of using Internet banking services. Bank customers having access to the Internet, use whether or not they Internet banking services, select those participants, and aim to explore and identify the factors that affect the adoption and use of the new technology via the Internet, such as the uses of Internet banking services.

The researcher contacted the key informants by sending a formal letter inviting them to participate in the study; a plain language statement letter provided detailed information about the study. Follow up would be through such various methods as; e-mail, telephone, fax and if needed be formal visits by the researcher to the key informants workplace. The researcher had a support letter from the sponsorship in Jordan to facilitate the data collection.

As mentioned in the chapter 4, there are seven steps involved in conducting interviews:

Step one: contacting the respondent.

Step two: set time and setting.

Step three: establishing rapport and neutrality.

Step four: opening question.

Step five: probe questions.

Step six: inviting a summary.

Step seven: concluding the interview.

From these seven steps, the data for the qualitative interview study was collected over a four month period. During this time, the researcher conducted 16 individual interviews. Each interview lasted 30-45 minutes and was recorded. To collect the data, the researcher used semi-structured interviews. Because this research involved many sites and multiple interviewers, and because the researcher wanted to maintain cross-case comparability (Miles and Huberman, 1994), the researcher felt it especially important to use a similar format for all the interviews. The interview guide began with questions such as, could you please tell me about Internet Banking in Jordan? From this point, questions moved on to a more interactive level by querying interviewees about new Technology adoption and use. The recordings of these interviews, once transcribed, resulted in over 50 pages of text. The entire Jordanian data set was translated into English. Then they carefully verified each other's translations to ensure contextual and semantic accuracy.

3.5.2 Quantitative Methodology

A methodology is considered to be part of a paradigm (Guba and Lincoln, 1994). Although the concepts are often used interchangeably, this section addresses and justifies the choosing of quantitative methodology as an appropriate technique to collect data to investigate the research problems. Broadly, a research methodology covers strategic decisions about the selection of data collection methods, and also more tactical

decisions about scaling procedures and measurement, samples and data analysis (Zickmund, 2003; Aaker, Kumar and Day, 2001).

A quantitative researcher seeks causes and facts from the outsider's view, or from a worldview perspective (Vidich and Lyman, 1994). They believe that there is reality that can be studied, and that science stands 'objectively' and value free outside that reality (Morrall, 2001). Moreover, the quantitative research findings are based on the researcher's interpretations of events and the relationship between the variables (Morse and Field, 1996).

Lincoln and Kalleberg (1990) argue that variables and relationships are the central idea in quantitative research. This is the key objective in this research. Therefore, quantitative methodology will be useful in providing detailed planning prior to data collection and analysis, because they provide tools for measuring concepts, planning design stages, and for dealing with sampling issues (Neuman, 2003; Zickmund, 2003).

The Post-positivism paradigm emphasises the objectivity of the researcher while acknowledging the probability of bias. Quantitative methods utilize statistical measures and control procedures that decrease the bias level and confound variables as much as possible (Emory and Cooper, 1991). Quantitative research is an effective technique in addressing, to a large extent, many of the problems of reliability, internal validity and the external validity of measures and procedures (Guba and Lincoln, 1994). Therefore, this method will be appropriate to increase the quality of the research outcomes.

In order to collect information to address the research questions, there is a need to gather data from different sources. These sources will include banking customers, in order to measure a client's perceptions of service quality and their intentions of remaining with the same bank.

The quantitative stage is a large-scale survey (975 respondents). The random sample is statistically significant and representative of the Jordanian population.

3.5.2.1 Survey Methodology

This research design was suitable for this study for two main reasons. Firstly, survey methodology was appropriate because respondents could not be easily assigned to control and treatment groups on a prior arrangement basis. Secondly, it was also suitable because the variables of interest were difficult for the researcher to manipulate (Emory and Cooper, 1991). Moreover, it has been argued that this design of the quantitative study is an appropriate method for studying industrial relationships, as presented in this research (Hakansson and Snehota, 1995; Anderson, 1994). Hakansson and Snehota (1997) argue that survey methodology is the key to establishing informant reports. Thus, survey research was an appropriate method to test hypotheses and measure many variables, including multiple indicators.

Neuman (2003) argues that surveys are very beneficial in producing information that is inherently statistical in nature. Surveys are usually designed with the objective of measuring awareness, knowledge, behaviour, and opinions (Zikmund, 2003; Malhotra,

1993). In particular, surveys are suitable for research questions about self-reported beliefs or behaviours (Nueman, 2003).

The primary method of data collection for the main study is a questionnaire survey, supplemented by follow-up personal interviews. The questionnaire method is selected from two main reasons. First, because there have been very few studies that have investigated the factors influencing the adoption and use of Internet banking and its application to banking in Jordan. This study collected data in order to have a broad picture of consumers' beliefs and attitudes towards new technology such as Internet banking, in order to understand the important factors that drive the development and classification of consumer behaviour in relation to new banking technology in the banking sector in Jordan. Survey research is probably the best method available to collect original data describing a large population observing directly (babbie, 1990). The present study uses a questionnaire as an economical and efficient way of covering a study population that is geographically dispersed across Jordan. Second, because a major part of the study is concerned with the respondent's perceptions of Internet banking and how these perceptions affect their adoption and use in the new technology service.

The majority of Jordanian individuals converse in Arabic. Therefore, the pilot study as well as the main study would be in the Arabic language. The pre-test questionnaire was sent to three bilingual Jordanians (English/Arabic people) to ensure that the two versions of the questionnaire matched as closely as possible. The English version was translated into Arabic by a bilingual Jordanian, and then translated back to English by another bilingual Jordanian working independently. The questionnaires in both language

versions were compared in order to resolve any differences. The final versions were then used for the main study. The full questionnaire has been sent to a panel of experts. In this questionnaire, the respondents were asked if they have Internet access and had to have a bank account mark “yes” or “no”. If they answered “yes”, they have to go to the following questions to answer them, if they answer “no”, then they need not continue. Some of the panel experts suggested not to ask in this way, because some of the participants may get confused, or just may say “no” in order not to continue the questionnaire. They suggested to ask them to tick only if they have Internet access and have a bank account, and then to continue the following questions after the data collection. Those who do not have Internet access or a bank account will be excluded from the survey.

The main survey was implemented using the questionnaire modified from the pilot study. The final questionnaire consists of sixty-four questions with a scale and twelve questions with a non-scale, organized into six sections. An eight-page questionnaire was designed for the main study. Each question represented a component of the research model. The questions were selected for their theoretical importance and potential relevance to practice. On several occasions, a statistical consultation was contacted from the Statistical Consultation Service in the University of Wollongong to verify the statistical validity of the research model, hypotheses and questionnaire.

In the first pages (cover letter): the cover letter was formatted to fit one A-4 size page and was printed on the University letterhead then signed by the main supervisor of this PhD research project as well as by the PhD candidate. The cover letter also included the purpose and description of the study. Also, the cover letter has a statement guaranteeing

the confidentiality of the respondents and a statement of how the research has been reviewed by the Human Research Ethics Committee (HREC), as required by the University of Wollongong by law in Australia. There was also a contact number if any one has any complaints about the conduct of the study (see Appendix I).

On the second page: detailed instructions govern the use of the survey questionnaire by giving two examples of how to answer this survey: circle one option; the number that corresponds to your answer, and then tick the square that corresponds to your answer. We thanked the respondents for taking the time to complete the survey from the beginning and then gave them the Internet banking definition.

On the third page: section one is about the culture dimensions.

On the fourth page: section two is about the trust dimensions.

On the fifth page: section three is about the technology quality dimensions. Part one from section four is about Perceived Usefulness (PU).

On the sixth page: part two from section four: about the Perceived Ease of Use (PEOU) of Internet banking, and section five, about Attitude Toward Using (ATU) and Behavioural Intention to use (BI) in Internet Banking.

On the last two pages (seventh and eighth pages): section six: this section requires personal information from the respondent, and has sub sections. It started from two important questions: *state* whether you are a bank customer or not (Yes or No), and whether or not you have access to the Internet (from anywhere, anytime)? (Yes or No). Second sub sections: please, tick (✓) for any of the following, which are relevant to your *answer*: Does your bank have a website? (Yes, No, or Don't know), Does your bank offer a Internet Banking service? (Yes, No, or Don't know). Are you using this Internet Banking service? (Yes or No). Before the final question there is some

demographic questions regarding gender, age, education level and income, and to which of the following one belongs (Private employees, Public employees). Finally, the two questions: How long you have been using computers in general? Please specify (...) in years; How many years have you been using the Internet? Please specify (...) in years. In the last part, the researcher asked the respondent to make any further comments they might wish to contribute. On the very last page of the questionnaire, the respondent was thanked for their valuable contribution to the study.

The section requiring personal information from the respondent was placed at the end of the questionnaire. This was done to assist the respondent to move straight to responding to questions related to the main purpose of the survey after reading the cover letter (Babbie, 2001; Dillman, 2000; Wiersma, 2000).

A copy of the survey questionnaire is included in Appendix I in English as well as Appendix II in Arabic.

The researcher used the individual as the unit of analysis, even though culture is usually considered to be a group-level phenomenon (Straub *et al.*, 2002). Culture can only manifest itself through individuals in a society, as there is no way to query or probe into the collective unconscious of an entire culture. Once the individual level data is collected, “it will also be possible to assert that certain cultural characteristics do or do not belong to certain cultures” (Straub *et al.*, 2002, p. 19).

Dillman (1978) develops a set of survey procedures that may be applied to achieve higher response rates. The procedures, collectively called the Total Design Method (TDM), consist of two parts:

- 1- Identifying and designing each aspect of the survey process that may affect response in a way that maximizes response rates;
- 2- Organizing the survey effort in a way that assures that the design intentions are carried out in complete detail.

Highly specific guidelines are provided for constructing the questionnaire and implementation the survey. In questionnaire construction, detailed instructions govern the use of paper, typefaces, sequence of questions, page layout, and so on. In implementation, comprehensive rules are given on the content and personalization of the cover letter, the signing of the latter, and the follow-up appeals to non-respondents.

The researcher, during the study, stored all the collected data from both the survey questionnaire and interviews recorded in a separate locked filing cabinet in the researcher's home while in Jordan. When in Australia, the researcher was hold the data in secure storage in the researcher's office in the school of Economics and Information Systems. Contact details will be kept separate from raw data at all times. Computer data files will be stored in a university based computer with password protection, where only the researcher will have access to these materials. After the completion of this study, secure storage and limited access to the data will be maintained for a period of 5 years. After that, tapes will be erased and hard copy data shredded.

The sample consisted of people in various levels. They included public and government agencies. We used a judgment sampling method whereby individual respondents were chosen based on their experiences, ability to reflect, and ability to articulate the information solicited (Morse, 1991). They consisted of a cross-section of users from

different functional areas, both male and female. The purpose for gathering data from such a wide and diverse sample was to ensure maximum variations of behaviors in different situations (Lincoln and Guba, 1985).

3.6 Data Analysis

As already stated, a mixed research design including quantitative and qualitative method “triangulation” was used for data collection and analysis to explore the research objectives in this study.

Firstly, in order, to analyse the qualitative from the semi-structure interviews **Leximancer 2:0** context mapping software was used; it also conducted sophisticated qualitative analyses of textual data. As will be seen in Chapter Seven, this software tool automates the analysis of concepts in the text, creating visualization of maps of the concepts and the relationships between them. Leximancer is a software tool capable of objectively analysing the content of text simply, quickly and effectively. Unlike other systems, Leximancer requires no hand coding and performs its analysis completely and automatically by extracting the semantic networks contained within the document set, otherwise known as unsupervised ontology discovery (Leximancer 2:0_Manual). Dr Andrew Smith has developed Leximancer at University of Queensland in the Key Centre for Human Factors. Leximancer’s a Java program uses an algorithm based in Bayesian statistics to generate concept maps, automatically grouping words, i.e., character strings into suggested clusters of meaning. Leximancer works with any language that uses Latinic characters. Leximancer is a tool that can be used to automatically analyse the content of document collections and display the extracted information. This information is presented on a conceptual map that provides a birds

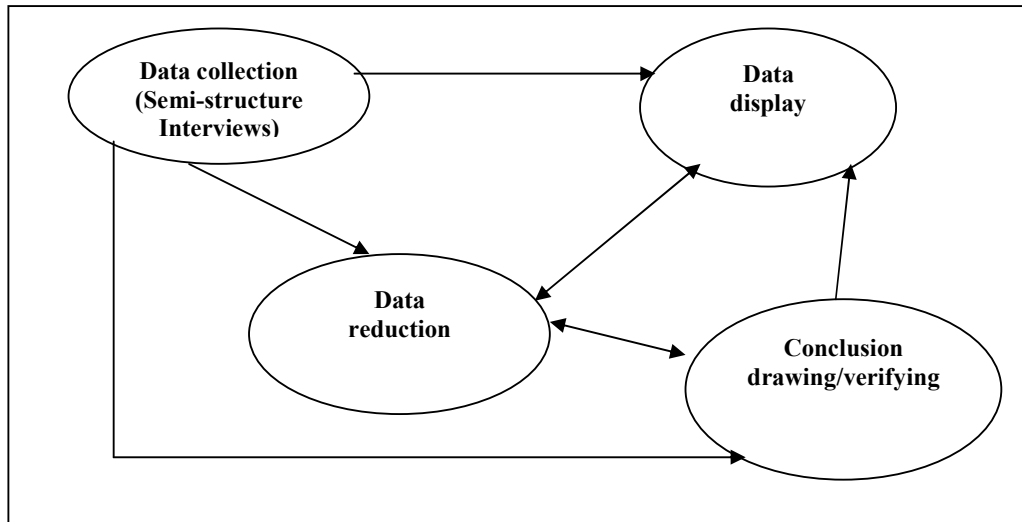
eye view of the material, representing the main ideas from the text and how they are related (Simon Perkins, 2004).

Secondly, for the quantitative method and scale data such as a survey questionnaire, multiple and simple linear regressions as well as ANOVA were used to evaluate the research model and the hypotheses associated with the research model using **SPSS** for 12.0 Windows. Further, a stepwise multiple regressions were used to determine the best model of Internet banking utilisation in Jordan. Descriptive statistics were used to summarise the demographic variables of respondents and to provide a guide for conducting multivariate analysis (Sekaran, 1992).

To guide the data analysis, the iterative data analysis model of Miles and Huberman has been followed as shown in figure 3.2; it incorporates the four phases of data collection, data reduction, data display, drawing, and verifying conclusions. In this model, qualitative data analysis is a continuous iterative enterprise. Issues of data reduction, of display and of verification successively come into play as analysis episodes follow each other. Miles and Huberman claim that this process is essentially the same an analysis modes that quantitative researchers use and, conceptually speaking, no more complex.

The collected data from the semi-structured interview method was entered into the Leximancer software analysis program to reduce and display the data analysing the data in such a way as to assist in the drawing and verifying of conclusions.

**Figure 3.2 the Iterative Data Analysis Model (Miles and Huberman, 1994, p12)
Components of Qualitative Data Analysis**



3.7 Ethical Considerations

Neuman (2003) argues: “Ethics define what is or is not legal to do, or what moral research procedures involve”. Therefore, this research will follow the ethical research procedures of the ethics guidelines of the Research and Higher Degree Committee of the University of Wollongong (UOW) by the Human Research Ethics Committee (HREC). Ethical clearance will be obtained prior to conducting research. This research does not deal with invasive information; so ethical problems are not anticipated.

During the surveying and interview stages, respondents will not be asked to participate in an unpleasant way. Instead, they will be encouraged to respond (Salant and Dillmant, 1994; Zikmund, 2003). Moreover, in this research, privacy and protection from misrepresentation and exploitation will be guaranteed for respondents (Zikmund, 2003) by explaining the purpose of the survey and not asking for their names and addresses.

CHAPTER 4.THEORETICAL FRAMEWORKS, RESEARCH MODEL AND HYPOTHESES

4.1 Introduction

There are many factors that could affect the success and effectiveness of Internet banking in the Arab world. A review of the literature and an exploratory study in Jordan suggests that the Technology Acceptance Model (TAM), which is the basis of much of the research into Information Technology Diffusion, may be useful only if it is extended to include specific issues of culture and trust on the customer side, and more basic elements of quality in technology usability and service on the bank side.

4.2 Theoretical Framework

The framework to be used in the study to investigate the research questions is constructed from a number of researchers have studied different aspects of the necessary phenomenon of individual reactions to computing technology from a variety of theoretical perspectives, including: technology acceptance model (TAM), which is an adaptation of the Theory of Reasoned Action (TRA) (Davis, 1996, 1993, 1989; Davis, et al, 1989,1992; Adams, et al, 1992; Venkatesh and Davis, 2000, 1996; Venkatesh, 1999; Venkatesh and Morris, 2000; Elkordy, 2000; Elkordy and Khalil, 2002); the Theory of Planned Behaviour (TPB) (Ajzen,1985); Social Cognitive Theory (SCT) (Hill et al., 1986, 1987) and the Activity Theory (Verenikina and Gould, 1997; Raisinghani and Schkade, 1997; Hassan, et al,1998). Candidates among these theories include, the Task Technology Fit Model (Dishaw and Strong, 1998, 1997); Institutional Theory, the Coordination Theory, and Organisational Complexity Model (Yager, 1997);

Contingency Model (Lauer and Rajagopalan, 2002; Handzic, 1997); Variance Theory and Process Theory (Seeley and Targett, 1999); General System Theory (Raisinghani and Schkade, 1997); and the Diffusion Theory (Raisinghani and Schkade, 1997; MaO, 2002).

A body of these theories has been acknowledged in MIS literature, because they enable researchers to gain useful insight into the reaction of people toward computer technology and the factors that produce the reactions. For instance, Activity Theory aims to explain the connection between human psychology and computer interface design in a social work environment (Hasan and Gould, 2001). This helps to enhance their information processing. In other words, it establishes the relationship between human computer interactions and computer interface design by taking into consideration the context of the work environment (Verenikina and Gould, 1997). Also, the Task Technology Fit Model aims to match the capability of the technology to the demand of the technology in a work environment (Dishaw and Strong, 1998, 1997).

Unfortunately, in this research, none of these theories are as feasible as the Technology Acceptance Model (TAM) (Davis, 1993, 1992, 1989), whose basis is the Theory of Reason Action (Fishbein and Ajzen, 1975), to study these phenomena by using the external variables culture, trust and technology quality. In other words, extended TAM to include specific issues of culture and trust on the customer side, and more basic elements of quality in technology usability and service on the bank side as external variables. Both TAM and the external variables have guided several researchers (Davis, 1993, 1992, 1989, 86; Davis, et. al., 1989; MaO, 2002; Srivihok, 1999; Dishaw and Strong, 1999, 1997; Kwon and Chidambaram, 2000; Thompson et. al., 1991; Bergeron

et. al, 1995). TAM's basis is the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975; Fishbein, 1979), its social factors (culture dimensions) come from (Hofstede, 1991, 1980; Srite, Mark David, 2000; McCoy, Scott, 2002.) while its trust factors come from (Yang, Zhilin, 2001; Kyu Kim, Bipin Prabhakar, 2000, Paul A. Pavlou, 2003.) whose related to individuals side. The technology quality comes from (Minjoon Jun, et. al., 2002, 2001; Minjoon Jun, Shaohan Cai, 2001; Zhilin Yang, Robin T. Peterson, 2001; Cathy S. Lin, Sheng Wu, 2002) who are related to the all bank side, and explain human behaviour towards attitudes the adopt and use of Internet banking in Jordan.

As found in much research, TAM has also been revised, adapted and extended both by its originators (Davis, 1993, Davis and Venkatesh, 1995, 1996) and by others (Chau, 1996; Disshaw and Strong, 1997; Hendrickson and Doll, 1998; Hubona, et. al., 1995, 1997; Szajna, 1996). These adoptions have explored various TAM beliefs and attitudinal constructs and their antecedents (Xia and Lee, 2000); issues of social influence (Malhotra and Gallentta, 1999); the temporal dimension of IT adoption behaviour (Karahanna, et. al., 1999; Morris, 1996, Venkatesh and Davis, 2000); the degree of volitional control in IT adoption and usage (Rawstorne, et al., 2000) as well as self measurement bias usage (Straub, et al., 1995).

Moreover, a review of scholarly research on IS acceptance and usage suggests that TAM has emerged as one of the most influential models in this stream of research (Davis, 1989; Davis, et. al., 1989, Robey, 1996). Although TAM with its original emphasis on system design characteristics, represents an essential theoretical contribution in understanding IS usage and acceptance behaviours (Davis, et. al., 1989), social factors, habits and facilitating condition variables. from Triandis' (1979)

framework as employed in previous research (Thompson, et. al., 1998) will provide a broader picture of human behaviours towards the acceptance and use of internet banking in Jordan. The theoretical foundation for the research model commences with the Theory of Reason Action as the basis of TAM.

4.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is one of the most widely employed models of individual acceptance and use of technologies. The model was initially developed and tested in the 1980s (Davis, 1986, 1989; Davis, et al., 1989). Subsequently, the model has been extensively validated across a variety of settings and subjected to theoretical extensions (Venkatesh and Davis, 2000; Venkatesh, et. al., 2003; Davis et al., 1989; Venkatesh and Morris, 2000). Davis, et al. (1989) developed TAM as a theoretical basis to explain human computer usage behaviour directly from generic TRA (Fishbein and Ajzen, 1975). Davis, et al., (1989) state that the objective of TAM is to provide an explanation of the determinants of computer acceptance that is generally capable of explaining the behaviour of users across a broad range of end-user computing technologies and user populations, while simultaneously being both parsimonious and theoretically justified (p. 985).

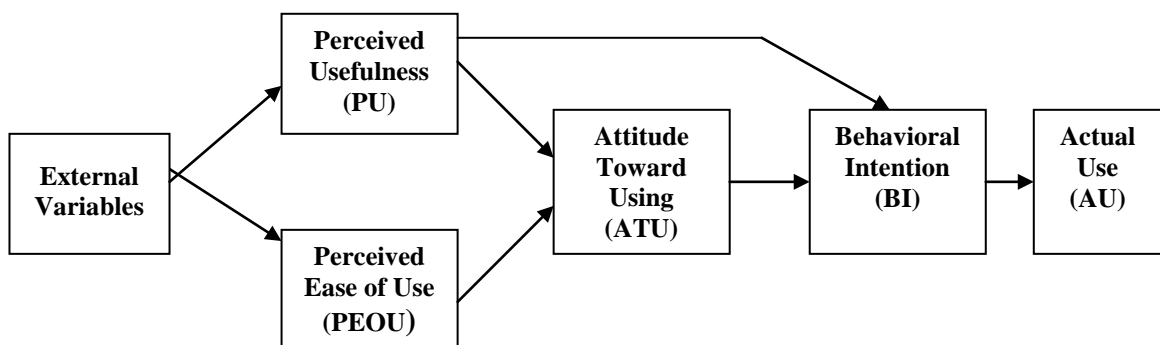
TAM uses TRA to specify causal linkages between two relevant sets of constructs, Perceived Usefulness (PU), Perceived Ease of Use (PEOU), user attitude toward using (ATU), behavioural intention (BI) and actual computer usage behaviour (AU).

Davis, et al. (1989, p. 985) define perceived usefulness (PU) as the user's "subjective probability that using a specific application system will increase his or her job performance within an organisation context". In addition, they define perceived ease of

use (PEOU) as, “the degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1993, p. 447). Put simply, the more useful and easier to use the technology is, the more likely the user would use it. Or, whereas, PU is concerned with the expected overall impact of system use on job performance (process and outcome), PEOU pertains only to those performance impacts related to the process of using the system per se (p. 447).

Both of the keys construct, PU and PEOU in the TAM model, predict an individual’s attitude towards using a computer system. PU and PEOU will influence an individual’s ATU. ATU will influence the BI, and in turn, Actual use of the system (AU). Actual use (AU) will be predicted by the individual’s BI. Davis (1986) and Davis et al. (1989) note the arrows in the TAM model to show the probable causality, as shown in Figure 4.1 below.

Figure 4.1 Technology Acceptance Model (TAM) based on Davis (1989)



4.2.2 The Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) is a well-developed and tested behavioural prediction model that has been used successfully since the mid 1970s to predict consumer behavior. The TRA, developed in 1967, was revised and expanded during the

early 1970s by Ajzen and Fishbein (1980). The theory suggests that in order to understand attitudes and their relation to intentions, it is important to understand consumers' subjective norms, i.e. the reference group influences on consumer decision making, regarding a particular action (Fishbein and Ajzen 1975, p301).

The theory of reasoning action (TRA) as the basis of TAM is based on the assumption that human beings are rational animals that systematically utilise or process the information available to them (Fishbein, 1979 p. 68). Although TRA is concerned with the determinants of human consciously intended behaviour, it is a widely studied model in social psychology (Fishbein and Ajzen, 1975).

In this theory, an individual's performance of a specific behaviour is determined by his/her behavioural intention (BI) to perform the behaviour. The BI is determined by an individual's perception of personal factors, such as attitude (A) towards the behaviour and subjective norm (SN); SN can simply be defined as what the consumer believes other people would think of the behaviour being performed, which is the social pressure of the behaviour in question (Ajzen and Fishbein, 1975; Fishbein, 1979).

According to the TRA, attitudes are a function of beliefs. The belief that performing an act would lead to a positive outcome makes individuals to hold a positive attitude towards performing the behaviour, while a person who believes that performing would lead to mostly negative outcomes would hold an unfavourable attitude. The belief that underlie individual attitude towards the behaviour is termed as behavioural beliefs (Fishbein, 1979, p. 68).

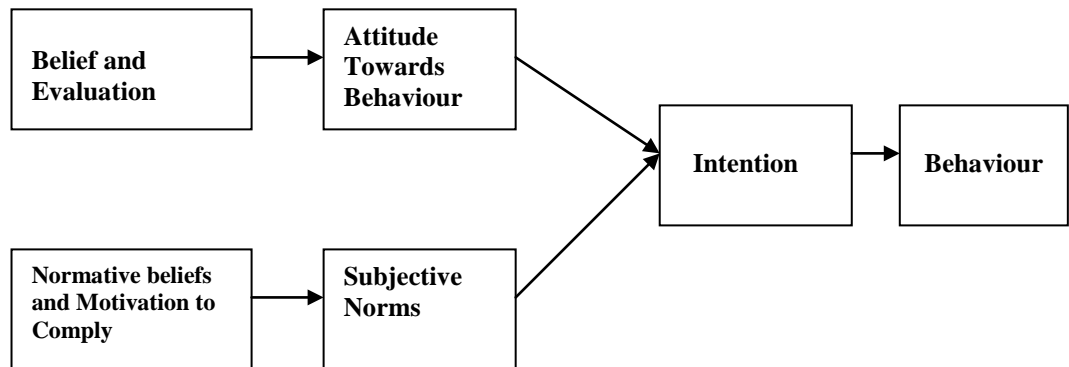
Subjective norms are the functions of beliefs. That is, an individual believes that specific individuals or a group thinks he/she should or should not perform the behaviour. If the person believes that most of the referents think he/she should perform the behaviour, the perceived social pressure to perform would increase the more he/she is motivated to comply with each of the referents. Conversely, if an individual believes that most referents are opposed to his/her performing the behaviour, his/her perception of social pressure not to perform the behaviour will increase with the motivation to comply. Thus, the belief underlying a person's beliefs is termed as the normative belief (Ajzen and Fishbein, 1975). Arrows in the TRA Figure 4.2 below indicates the direction of the influence.

Formally, the Theory of Reasoned Action can be presented as follows (Fishbein and Ajzen 1975, p301):

$$B \sim BI = (AB) W1 + (SN) W2$$

where B = a specific behaviour, I = consumer's intention to perform behavior B, AB = consumer's attitude toward performing behavior B, SN = subjective norm regarding whether other people want the consumer to engage in that behavior, and W1 and W2 = empirically determined weights that reflect the relative influence of the AB and SN, and components of BI. As stated, the TRA has been used in various behavioral science disciplines in order to predict and understand consumer behaviour.

Figure 4.2. The Theory of Reasoned Action based on Fishbein and Ajzen (1975)



The Fishbein model has been used since the late 1970s. The success of the model is mainly based on its ease of use. The model has intuitive appeal to researchers and managers. The fundamental purpose of the Fishbein model is to provide an insight into the structure of consumer attitudes.

Fishbein and Ajzen (1975) recognized that consumer attitudes toward an object might not always be systematically related to their behavior. In addition, they modified and extended the model to better relate to consumers' beliefs and attitudes to their behavioral intentions. Moreover, the theory assumes that consumers consciously consider the consequences of the alternative behaviors under consideration and choose the one that leads to the most desirable consequences. The outcome of this selection process is an intention to engage in the selected behavior. In particular, the theory proposes that voluntary behavior is determined by the intention to perform the behavior. The TRA identifies the factors that underlie consumers' intentions to perform a specific behavior. The theory is helpful in predicting consumer behavior and understanding attitudes. In addition, the TRA looks at intentions rather than attitudes as the most important predictors of overt behavior. However, as stated above, the measures of

consumers' intentions may not always be perfect indicators of the intentions that actually determine their behavior.

4.3 The Research Model

4.3.1 The Expanded TAM for Use in Less-developed Countries

In developed countries, there has been a long history of research and development into the capability and acceptability of Internet banking products, which are created in, and for, those countries. Davis' (1989) Technology Acceptance Model (TAM) has been the foundation of much of the research into technology diffusion but almost all of this research has been conducted in the USA and other developed, Western countries. Because of this limitation in the use of TAM, it may be necessary to question its adequacy for research into the adoption of new technologies, such as that of Internet banking, in the circumstances that exist in less-developed countries, such as those in the Middle East. There is currently no empirical evidence that information technology acceptance models, established in developed countries, can apply equally well to less-developed countries without some modification to account for the different context. However, it is not unreasonable to assume that the need for some modification may be the case. A universally applicable model must have relevance across the broad field of information technology applications and should also have a high probability of success in transfers of various technologies across economic and cultural boundaries.

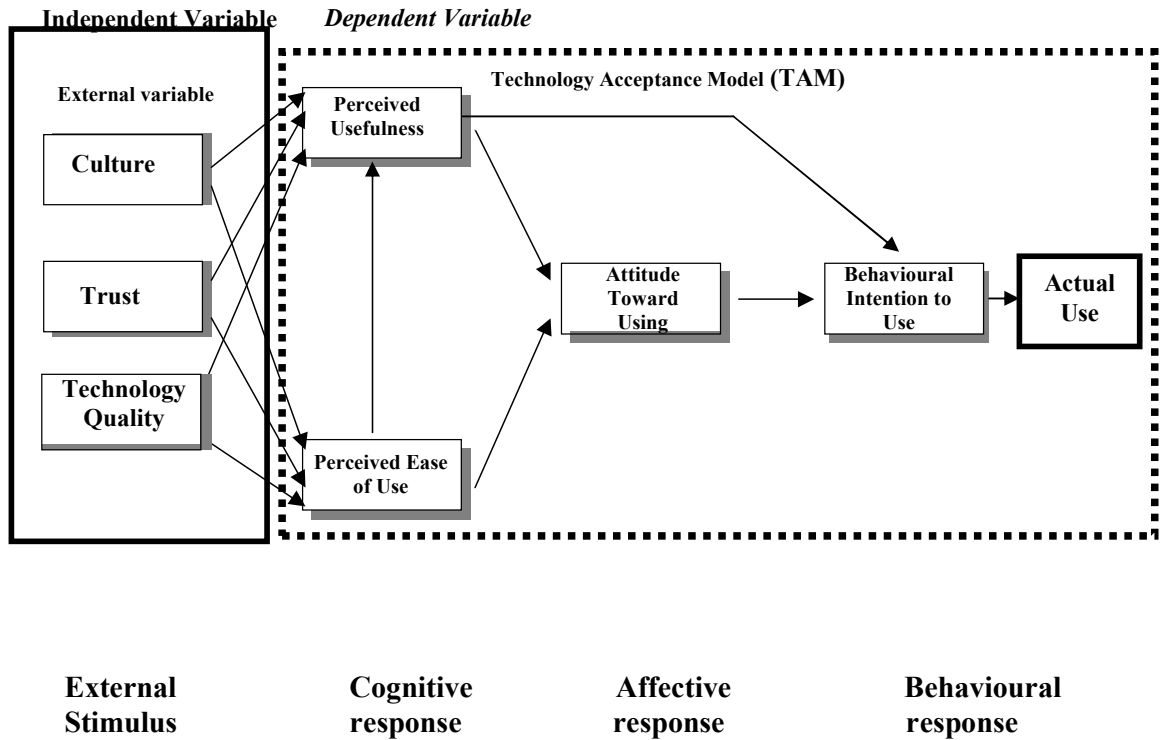
This research examines the appropriateness of the TAM model for the study of Internet banking in a developing country. It will first examine literature, which suggest that models of information technology adoption and use in developed countries may not be totally applicable to less-developed countries. The literature survey and research results will then be analysed to suggest modifications to the Technology Acceptance Model to

make it more relevant for research on technological adoption in less-developed, and developing, countries.

This research recognises that there are many factors that could affect the success and effectiveness of Internet banking in less-developed regions such as the Middle East. Some of these factors may not be identified in the existing literature on IT adoption as most of this research has been conducted in developed countries for which the technology was originally created. A review of the literature and an exploratory study in the Jordanian context suggests that the technology acceptance model, which is the basis of much of the research into IT diffusion, may be useful; although it may need to be extended to include specific issues of culture and trust on the customer side and more basic elements of quality in technology usability and service on the side of the banks. This is shown in Figure 4.3.

While more work is needed to determine a more detailed understanding of the factors themselves and their influence on user behaviour, it is suggested that a variation on the TAM model could be useful for those in governments and banking industries who have an economic imperative to establish the Middle East in the global market place.

Figure 4.3 The Expanded TAM for Use in Less-developed Countries



The model shown in Figure (4.3) forms the basis of this research, and the constructs used are described here based on a large body of related research (Ajzen and Fishbein, 1975, 1979; Davis, 1993; Davis, et al, 1992; Venkatesh and Davis, 1996; Triandis 1979,1971). Attitudes are defined as a mental predisposition to act that is expressed by evaluating a particular entity with some degree of favour or disfavour. Individuals generally have attitudes that focus on objects, people or institutions. Attitudes are also attached to mental categories. Mental orientations towards concepts are generally referred to as values. Attitudes are comprised of four components:

Cognition- Cognition influences our beliefs, theories, expectancies, cause and effect beliefs, and perceptions relative to the focal object. Their cognitive capacity has a great

impact on the consumer's decision making they form feelings toward the since service provided that predisposes them to purchase.

Affection- The affective component refers to our feeling with respect to the focal object such as fear, liking, or anger.

Behavioural Intentions- Behavioural intentions are our goals, aspirations, and our expected responses to the attitude object.

Evaluation- Evaluations are often considered the central component of attitudes. Evaluations consist of the imputation of some degree of goodness or badness to an attitude object. When we speak of a positive or negative attitude toward an object, we are referring to the evaluative component. Evaluations are function of cognitive, affect and behavioural intentions of the object. It is most often the evaluation that is stored in memory, often without the corresponding cognitions and affect that were responsible for its formation.

External Stimulus (Social influence and Technology Quality): the influence of culture and trust on the customer side, and the more basic elements of influence of quality in technology usability and service on the bank's side.

4.3.2 Definitions of Key Variables

Culture

The researcher adopts Hofstede's (1980, p. 21) notion of culture as, "Culture is the collective programming of the mind which distinguishes the members in one human group from another." In cross-national research, people from different cultural and ethnic backgrounds are referred to as having "different mindsets," where "mindsets" refers to all those concepts related to cultural similarities and differences (Hofstede, 1991). One assertion by Hofstede that's important to our study is that culture "is learned," not only "inherited." This supports the belief theory that individuals can both learn and unlearn cultural traits based on environmental influences such as adopting new Information Technology.

Trust

Trust can be defined as a user's confident belief in a bank's honesty toward the user (Macintosh and Lockshin, 1997; Tax, et al., 1998). Despite the phenomenal growth of Internet users in recent years, the penetration rate of a Internet applications (electronic channel) is still low and one of the most often cited reasons is the lack of consumer's trust (Hoffman, et al., 1999). There is both trust in the banks, as organizations or institutions and trust in the electronic channels (Internet-based transaction delivery) (Yang, Zhilin, 2001; Kyu Kim, Bipin Prabhakar, 2000; Paul A. Pavlou, 2003).

Technology Quality: Based on the literature review, we identified the following three broad conceptual categories related to Internet banking service quality: customer service quality, online systems quality, and banking service product quality. To be more specific, in this research we utilize Internet-Based service quality as the online service

quality according to Minjoon Jun, et. al. (2001, 2002) ; Minjoon Jun, Shaohan Cai (2001) ; Zhilin Yang, Robin T. Peterson (2001) ; Cathy S. Lin, Sheng Wu (2002).

Perceived Usefulness (PU)

The degree to which a person believes that using IT would improve his/her job performance (Davis, 1989, 1993; Davis et. al., 1989).

Perceived Ease of Use (PEOU)

The degree to which a person believes that using an IT would be free of effort (Davis et al., 1992; Adams et al., 1992; Davis, 1989 1993; Kwon and Chidambaram, 2000; Mao, 2002)

Attitude Toward Using (ATU)

“an individual’s positive or negative feelings (evaluative affect) about performing the target behavior” (Fishbein and Ajzen, 1975, p. 216). ATU are a function of beliefs, positively or unfavourably towards the behaviour (Ajzen and Fishbein, 1975; Fishbein, 1979; Davis, 1993; Davis et al., 1992; Yogesh M., Dennis F., 1999; Taylor and Todd, 1995). Fishbein and Ajzen (1975) claimed that adopting a behavior is an indirect consequence of the beliefs related to the consequences of an evaluation of such behavior and consequences.

Behavioural Intention to Use (BI)

Fishbein and Ajzen (1975) defined behavioral intentions (BI) as the, “strength of one’s intention to perform a specified behavior”. We consider Behavioural intentions as our

goals, aspirations, and our expected responses to the attitude object (Yogesh M., Dennis F., 1999; Michael G. Morris and Andrew Dillon, 1997; Paul A. Pavlou, 2003).

Actual use (AU): Actual use is behaviour. The theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) provides a sound foundation for understanding behaviour, based on intention, attitudes, and beliefs that lead to actual technology use (Davis, 1989, 1993; Davis, et. al., 1989).

4.4 Research Hypotheses

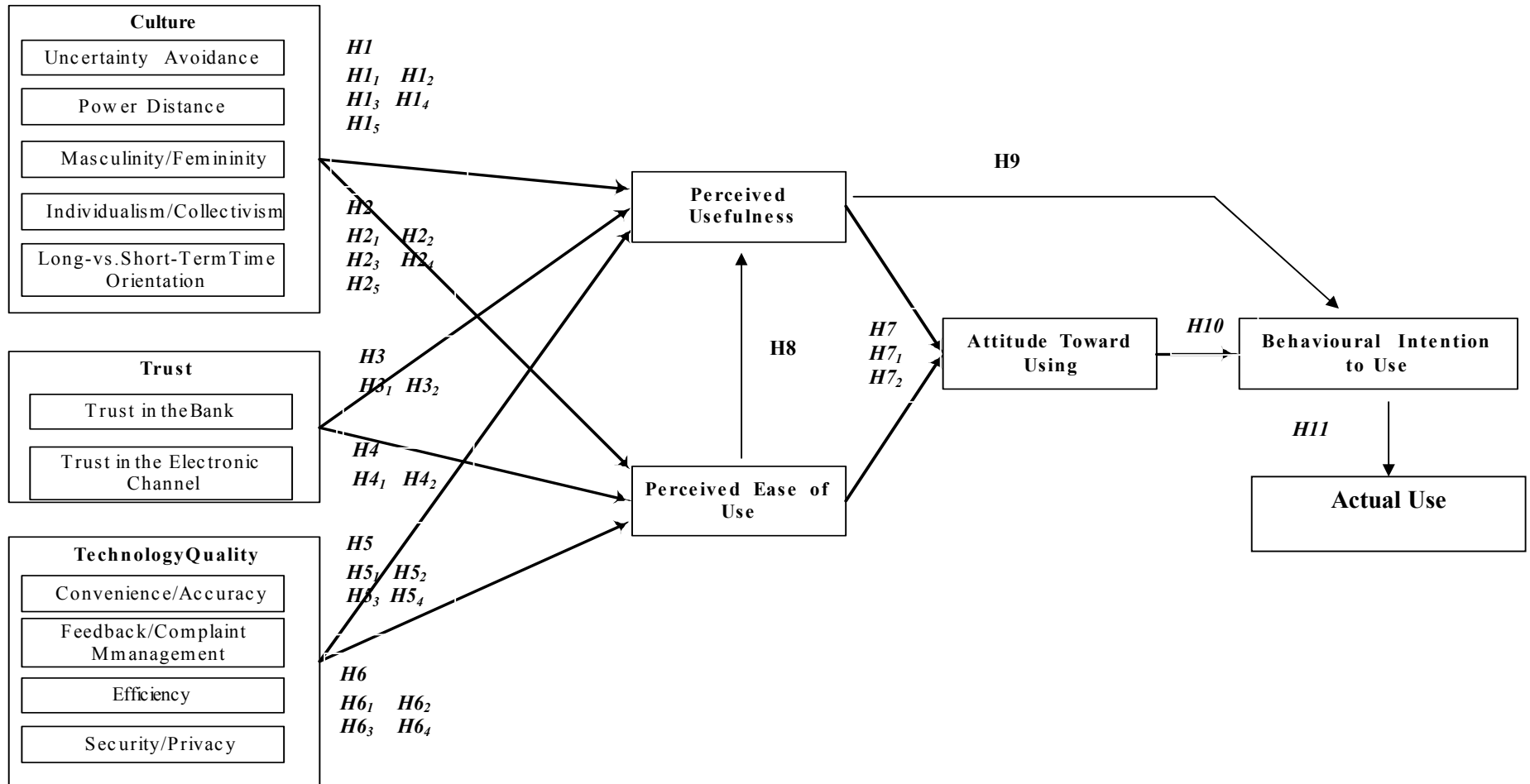
In this study, the researcher will test the effects of culture consumer users, trust and technology quality and their relationships with the technology acceptance model (TAM). By doing this, there will be a stronger relationship among the TAM constructs, based on whether a person will get high or low scores on the cultural dimensions, trust and technology quality. The culture of people and the quality system can have an affect on the acceptance technology adoption and use, as well as on decisions such as Internet banking technology. Therefore, this study attempts to construct a model for analysing Internet banking adoption and use based on the TAM that has been studied and accepted as a powerful model in the studying of information technology usage.

We posit that TAM will predict the use of information technology in the developing world. As a result, the following hypotheses, implicitly framed in the setting of less-developed countries, are expected to be true. The questions put in the questionnaire will try to support all of these hypotheses:

Table 4.1 Main and Associated Hypotheses for the Expanded TAM Model

Hypotheses		Independent Variable	Dependent Variable
Main	Sub		
H1	H1 ₁	Culture <ul style="list-style-type: none"> ▪ Uncertainty Avoidance (UA) ▪ Power Distance (PD) ▪ Masculinity/Femininity (MF) ▪ Individualism/Collectivism (IC) ▪ Long- VS. Short-Term Time Orientation (LST) 	Perceived Usefulness (PU)
	H1 ₂		
	H1 ₃		
	H1 ₄		
	H1 ₅		
H2	H2 ₁	Culture <ul style="list-style-type: none"> ▪ Uncertainty Avoidance (UA) ▪ Power Distance (PD) ▪ Masculinity/Femininity (MF) ▪ Individualism/Collectivism (IC) ▪ Long- VS. Short-Term Time Orientation (LST) 	Perceived Ease of Use (PEOU)
	H2 ₂		
	H2 ₃		
	H2 ₄		
	H2 ₅		
H3	H3 ₁	Trust <ul style="list-style-type: none"> ▪ Trust in the Bank (TB) ▪ Trust in the Electronic Channel (TE) 	Perceived Usefulness (PU)
	H3 ₂		
H4	H4 ₁	Trust <ul style="list-style-type: none"> ▪ Trust in the Bank (TB) ▪ Trust in the Electronic Channel (TE) 	Perceived Ease of Use (PEOU)
	H4 ₂		
H5	H5 ₁	Technology Quality <ul style="list-style-type: none"> ▪ Convenience/Accuracy (CA) ▪ Feedback / Complaint management (FC) ▪ Efficiency (EF) ▪ Security/Privacy (SP) 	Perceived Usefulness (PU)
	H5 ₂		
	H5 ₃		
	H5 ₄		
H6	H6 ₁	Technology Quality <ul style="list-style-type: none"> ▪ Convenience/Accuracy (CA) ▪ Feedback / Complaint management (FC) ▪ Efficiency (EF) ▪ Security/Privacy (SP) 	Perceived Ease of Use (PEOU)
	H6 ₂		
	H6 ₃		
	H6 ₄		
H7	<i>H7₁</i> <i>H7₁</i>	Perceived Usefulness (PU) Perceived Ease of Use (PEOU)	Attitude Toward Using (ATU)
H8	-	Perceived Ease of Use (PEOU)	Perceived Usefulness (PU)
H9		Perceived Usefulness (PU)	Behavioural Intention (BI)
H10		Attitude Toward Using (ATU)	Behavioural Intention (BI)
H11	-	Behavioural Intention (BI)	Actual use (AU)

Figure 4.4 Main Effects and Associated Hypotheses for the Expanded TAM Model



4.4.1 The External Variable Hypotheses and the TAM Model

The hypotheses associated with this problem statement are as follows: H1, H2, H3, H4, H5 and H6.

Because of its relatively subtle and complicated characteristics, cultural factors have not seriously been studied in technology diffusion literature. However, the effective transfer of technology requires a consideration of multiple factors, including cultural differences (Schnepp, et al., 1990). Cultural differences begin to exert much stronger influences when the importing organization is located in a developing country (Kedia and Bhagat, 1988).

This construct is posited to directly affect perceived ease of use and perceived usefulness technology, for several reasons, as to be discussed later. When technology transfer involves participants from diverse cultural backgrounds, the interactive effects of two different cultures may influence their relationship, both during and after the transfer. These interactive effects can be described as "cultural affinity" (Hallen and Johanson, 1985). It seems reasonable to expect a lack of such affinity occurring in obstacles during the process of transfer and application. On the other hand, intimate relationships are easier to establish and develop with those from culturally similar countries. Many other studies have addressed the importance of social phenomena in consumer decision making (Shaw, 1981; Tuomela, 1995; Bagozzi, 2000).

4.4.1.1 Hypothesis 1: Culture vs. Perceived Usefulness

Although TAM has received extensive support in the United States of America, comparatively little research has examined its validity across cultures (Straub, et al., 1997). Exceptions are Straub, et al. (1997), which examined technology acceptance in the United States, Japan, and Switzerland. Rose and Straub (1998) which examined TAM in the Arab countries of Jordan, Egypt, Saudi Arabia, Lebanon, and Sudan. This study suggests that TAM generalizes the Swiss and Arab cultures, but not in the Japanese culture.

A. The Main Hypothesis: Culture vs. Perceived Usefulness

H1: There is a positive relationship between culture and the perceived usefulness. Culture will positively influence the perceived usefulness of Internet banking.

B. The Subhypotheses: Culture Diminutions vs. Perceived Usefulness

H1₁: There is a direct and positive effect relationship between Uncertainty Avoidance and the perceived usefulness of Internet banking.

H1₂: There is a direct and positive effect relationship between Power Distance and the Perceived Usefulness of Internet banking.

H1₃: There is a direct and positive effect relationship between Masculinity/Femininity and the Perceived Usefulness of Internet banking.

H1₄: There is a direct and positive effect relationship between Individualism/Collectivism and the Perceived Usefulness of Internet banking.

H1₅: There is a direct and positive effect relationship between Long- vs. Short-Term Time Orientation and the Perceived Usefulness of Internet banking.

4.4.1.2 Hypothesis 2: Culture vs. Perceived Ease of Use

A. The Main Hypothesis: Culture vs. Perceived Ease of Use

H2: There is a positive relationship between Culture and the Perceived Ease of Use.

B. The Subhypotheses: Culture Diminutions vs. PEOU

H2₁: There is a direct and positive effect relationship between Uncertainty Avoidance and the Perceived Ease of Use of Internet banking.

H2₂: There is a direct and positive effect relationship between Power Distance and the Perceived Ease of Use of Internet banking.

H2₃: There is a direct and positive effect relationship between Masculinity/Femininity and the Perceived Ease of Use of Internet banking.

H2₄: There is a direct and positive effect relationship between Individualism/Collectivism and the Perceived Ease of Use of Internet banking.

H2₅: There is a direct and positive effect relationship between Long- vs. Short-Term Time Orientation and the Perceived Ease of Use of Internet banking.

4.4.1.3 Hypothesis 3: Trust vs. Perceived Usefulness

Trust in the organization or institution. Institution trust appears to trust in managerial competence and trust in organization support of information technology (Lewicki and Bunker, 1996; Powell, 1996; Tyler and DeGoey, 1996). The dimension reflects trust of both relevant others who might be users of technology with whom would offer interact using the information technology.

A. The Main Hypothesis: Trust vs. Perceived Usefulness

H3: There is a positive relationship between Trust and the Perceived Usefulness.

B. The subhypotheses: Trust Diminutions vs. PU

H3₁: There is a positive relationship between Trust in the Bank and the Perceived Usefulness.

H3₂: There is a positive relationship between Trust in the Electronic Channel and the Perceived Usefulness.

4.4.1.4 Hypothesis 4: Trust vs. Perceived Ease of Use

A. The Main Hypothesis: Trust vs. Perceived Ease of Use

H4: There is a positive relationship between Trust and the Perceived Ease of Use.

B. The Subhypotheses: Trust Diminutions vs. PEOU

H4₁: There is a positive relationship between Trust in the Bank and the Perceived Ease of Use.

H4₂: There is a positive relationship between Trust in the Electronic Channel and the Perceived Ease of Use.

4.4.1.5 Hypothesis 5: Technology Quality vs. Perceived Usefulness

The biggest challenge that faces a bank is to offer a certain level of quality that meets Individual requirements (Schneider, Holcombe and White 1997). Individual perception analysis of technology quality is a critical key to improve technology quality (Vriens and Harmen, 2000) within the banking sector because it provides a good basis for understanding what the Individuals need during the technology delivery process (Parasuraman, et al., 1985).

A. The Main Hypothesis: Technology Quality vs. Perceived Usefulness

H5: There is a positive relationship between Technology quality and the Perceived Usefulness.

B. The Subhypotheses: Technology Quality Diminutions vs. PEOU

H5₁: There is a positive relationship between Convenience/Accuracy and the Perceived Usefulness.

H5₂: There is a positive relationship between Feedback/Complaint management and the Perceived Usefulness.

H5₃: There is a positive relationship between Efficiency and the Perceived Usefulness.

H5₄: There is a positive relationship between Security/Privacy and the Perceived Usefulness.

4.4.1.6 Hypothesis 6: Technology Quality vs. Perceived Ease of Use

A. The Main Hypothesis: Technology Quality vs. Perceived Ease of Use

H6: There is a positive relationship between Technology quality and the Perceived Ease of Use.

B. The Subhypotheses: Technology Quality Diminutions vs. Perceived Ease of Use

H6₁: There is a positive relationship between Convenience/Accuracy and the Perceived Ease of Use.

H6₂: There is a positive relationship between Feedback/Complaint management and the Perceived Ease of Use.

H6₃: There is a positive relationship between Efficiency and the Perceived Ease of Use.

H6₄: There is a positive relationship between Security/Privacy and the Perceived Ease of Use.

4.4.2 The Internal Variables Hypotheses Inside the TAM

In studying user acceptance and use of technology, the TAM is one of the most cited models. According to the TAM, 'perceived usefulness' and 'perceived ease of use' are primary motivational factors for accepting and using new technologies. Perceived usefulness is the degree to which a person believes that use of technology will produce better outcomes (Davis, 1989). 'Useful' refers to being 'capable of being used advantageously.' In contrast, perceived ease of use is the perception about the degree of effort needed to use a particular system. In this case, 'ease' is conceptualised as, 'freedom from difficulty or great effort.'

According to the TAM, if a user perceives a specific technology as useful, s/he will believe in a positive use performance relationship. Since effort is a finite resource, a user is likely to accept an application when s/he perceives it as easier to use than another (Rander and Rothchild, 1975). As a consequence, educational technology with a high level of Perceived Usefulness and Perceived Ease of Use is more likely to induce positive perceptions. The relation between Perceived usefulness and perceived ease of use is that Perceived usefulness mediates the effect of perceived ease of use on attitude and intended use (Moon and Kim, 2001).

Numerous empirical studies have already validated the relationship between PU and user acceptance of information systems. Therefore, it is expected that individuals will adopt Internet banking if they perceive Internet banking will help them to attain a desired performance. From this point of view, the hypothesis (H7, H8 and H9) proposes as follows.

4.4.2.1 Hypothesis 7: Perceived Usefulness vs. Attitude Toward

H7₁: There is a positive relationship between Perceived Usefulness and Attitude Toward Using Internet banking.

H7₂: There is a positive relationship between Perceived Ease of Use and Attitude Toward Using Internet banking.

Information systems in which users perceive perceived usefulness and less complex will increase the likelihood of its adoption and usage (Teo, et al. 1999). According to several research papers on TAM (Davis, et al. 1989; Teo, et al. 1999), PU has been shown to

influence attitude toward using (i.e., IT adoption) through causal ways and has a direct effect on attitude toward using.

4.4.2.2 Hypothesis 8: Perceived Ease of Use vs. Perceived Usefulness

H8: There is a positive relationship between Perceived Ease of Use and Perceived Usefulness Internet banking.

Based on the TAM (Davis, et al. 1989; Adams, et al., 1992), perceived ease of use is related to both system usage and perceived usefulness. They proposed that perceived ease of use is directly and indirectly related to behaviour (i.e., usage) through its effect on perceived usefulness. These effects have been tested and found to be significant (Davis, et al. 1989; Adams, et al., 1992). Thus, it is proposed that perceived ease of use is related to perceived usefulness and system usage. Further, it is proposed that perceived ease of use will have both direct and indirect effects on usage through its impact on perceived usefulness. PU and PEOU have been studied as key determinants of technology acceptance and usage (Davis, 1989; Adams, et al., 1992; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000). Previous research has shown that PU is an important direct determinant of technology acceptance. The current study also revealed that there was a positive relationship between perceived usefulness and perceived ease of use. Previous studies have reported results including a positive relationship (Agawal and Prasad, 1999; Chau, 1996; Venkatesh and Davis, 2000, Al-Sukkar A. and Hasan H., 2005; 2004a,b).

4.4.2.3 Hypothesis 9: Perceived Usefulness vs. Behavioural Intentions

H9: There is a positive relationship between Perceived Usefulness and Behavioural Intentions to use Internet banking.

This hypothesis examines cognitive beliefs (Perceived usefulness) and affect influencing one's behavioural intention to continue using Internet banking. The results suggest that users' continuance intention is determined by their perceived usefulness of continued Internet banking use. User Perceived usefulness, in turn, is influenced by their confirmation of expectation from prior internet banking use and perceived usefulness, internet banking acceptance perceived usefulness is influenced by users' confirmation level. In other word, this research indicates that perceived usefulness is a major determinant and predictor of behavioural intentions to use the Internet application such as Internet banking.

4.4.2.4 Hypothesis 10: Attitude Toward vs. Behavioural Intentions

H10: There is a positive relationship between Attitude and Behavioural Intentions to use Internet banking.

There is several literature say there is a positive significant relationship between the attitude toward and behavioural intention such as, (Agawal and Prasad, 1999; Bruner and Kumar, 2000; Choi, 2000; Choi *et al.*, 2001; Davis, 1993; Gefen and Straub, 2000; Hu *et al.*, 1999; Moon and Kim, 2001; Stevenson *et al.*, 2000, Al-Sukkar A. and Hasan H., 2005; 2004a,b). This hypothesis will examine this relationship between the attitude toward the Internet banking in Jordan and behavioural intention.

4.4.2.5 Hypothesis 11: Behavioral Intentions vs. Actual Use

H11: There is a positive relationship between Behavioral Intentions and Actual Use of Internet banking.

This hypothesis will examine the relationship between behavioural intention of Internet banking in Jordan and the actual usage or the acceptance the new technology. This issue suggests that the customers' of banks in Jordan have actual use of Internet banking because they have a good intention according it.

Twelve main hypotheses are summarised in Table 4.2. The first six hypotheses (H1, H2, H3, H4, H5, H6) for the three external TAM variables (outside TAM), and the last six hypotheses for the inside of the TAM variables (H7₁, H7₂, H8, H9, H10, H11), the majority of the hypotheses have subhypotheses.

Table 4.2. Summary of the Research Hypotheses

Research Hypothesis
<p>H1: There will be a positive relationship between culture and the perceived usefulness; culture will be a positive influence on the perceived usefulness of Internet banking.</p> <p>H1₁: There is a direct and positive effect relationship between uncertainty avoidance and the perceived usefulness of Internet banking.</p> <p>H1₂: There is a direct and positive effect relationship between power distance and the perceived usefulness of Internet banking.</p> <p>H1₃: There is a direct and positive effect relationship between masculinity/femininity and the perceived usefulness of Internet banking.</p> <p>H1₄: There is a direct and positive effect relationship between individualism/collectivism and the perceived usefulness of Internet banking.</p> <p>H1₅: There is a direct and positive effect relationship between long- vs. short-term time orientation and the perceived usefulness of Internet banking.</p>
<p>H2: There will be a positive relationship between culture and the perceived ease of use.</p> <p>H2₁: There is a direct and positive effect relationship between uncertainty avoidance and the perceived ease of use of Internet banking.</p> <p>H2₂: There is a direct and positive effect relationship between power distance and the perceived ease of use of Internet banking.</p>

<p>H2₃: There is a direct and positive effect relationship between masculinity/femininity and the perceived ease of use of Internet banking.</p> <p>H2₄: There is a direct and positive effect relationship between individualism/collectivism and the perceived ease of use of Internet banking.</p> <p>H2₅: There is a direct and positive effect relationship between long- vs. short-term time orientation and the perceived ease of use of Internet banking.</p>
<p>H3: There will be a positive relationship between trust and the perceived usefulness.</p> <p>H3₁: There will be a positive relationship between trust in the bank and the perceived usefulness.</p> <p>H3₂: There will be a positive relationship between trust in the electronic channel and the perceived usefulness.</p>
<p>H4: There will be a positive relationship between trust and the perceived ease of use.</p> <p>H4₁: There will be a positive relationship between Trust in the bank and perceived ease of use.</p> <p>H4₂: There will be a positive relationship between trust in the electronic channel and the perceived ease of use.</p>
<p>H5: There will be a positive relationship between online service quality and the perceived usefulness.</p> <p>H5₁: There will be a positive relationship between convenience/accuracy and the perceived usefulness.</p> <p>H5₂: There will be a positive relationship between feedback/complaint management and the perceived usefulness.</p> <p>H5₃: There will be a positive relationship between efficiency and the perceived usefulness.</p> <p>H5₄: There will be a positive relationship between security/privacy and the perceived usefulness.</p>
<p>H6: There will be a positive relationship between online service quality and the perceived ease of use.</p> <p>H6₁: There will be a positive relationship between convenience/accuracy and the perceived ease of use.</p> <p>H6₂: There will be a positive relationship between feedback/complaint management and the perceived ease of use.</p> <p>H6₃: There will be a positive relationship between efficiency and the perceived ease of use.</p> <p>H6₄: There will be a positive relationship between security/privacy and the perceived ease of use.</p>
<p>H7₁: There is a positive relationship between perceived usefulness and attitude toward using Internet banking.</p> <p>H7₂: There is a positive relationship between perceived ease of use and attitude toward using Internet banking.</p>
<p>H8: There is a positive relationship between attitude and behavioral intentions to use Internet banking.</p>
<p>H9: There is a positive relationship between behavioral intentions and the actual use of Internet banking.</p>
<p>H10: There is a positive relationship between perceived ease of use and the perceived usefulness of Internet banking.</p>
<p>H11: There is a positive relationship between perceived usefulness and the behavioral intentions of Internet banking.</p>

CHAPTER 5. REVIEW OF THE LITERATURE BEHIND THE CONSTRUCTS OF THE EXPANDED TAM

5.1 Introduction

The Internet is the driving force behind the new global economy, with Internet banking allowing banks to revolutionise services and giving their customers more options than ever before. Because so many banks world-wide have launched Internet sites in the last few years, banks can no longer differentiate themselves by merely having an Internet presence. Online services, such as Internet banking transactions, online credit card applications and online bill payment, are becoming the global industry standard. To differentiate themselves in the future, banks will need to continuously evolve such services to better meet customers' needs, capitalising on new technologies to build stronger customer relationships.

As described in Chapter two and four of the thesis, this research proposes an expansion of the TAM model tailored for the study of Internet banking in developing countries. This chapter will examine the available literature for possible modifications to the Technology Acceptance Model that could make it more relevant for research on technology adoption in less-developed, and developing, countries. In Chapter 4, it was proposed that that technology acceptance model be expanded to take into account the user culture, consumer trust and technology quality and their relationship to the standard TAM variables. A review of the literature on these concepts will now be presented.

5.2 Definitions

5.2.1 Culture

The Macquarie Dictionary defines the culture of a society as: "The sum total of ways of living built up by a group of human beings, which is transmitted from one generation to another." Culture is also the shared values of a particular group of people (Erez and Early, 1993), and it reflects the core values and beliefs of individuals, formed during childhood and reinforced throughout life (Shore and Vankatachalam, 1996). Hasan H. and Ditsa G. (1999) mention that "Culture can be thought of as the beliefs, philosophy, shared values, attitudes, customs, norms, rituals, common practices, and traditions which govern the ways of living of a group of people".

Culture can be described in terms of values and norms. Values define what is worth doing or having, and are formed from experience with parents, school, religion and the media (Lauren, 1983). Norms are shared beliefs about behaviour (Hill, et al., 1998; Straub, et al., 1997, 2001, 2002). Culture can also refer to the differences between the beliefs, values, and motivations of different groups (Goodman and Green, 1992). Other researchers identify culture as the deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relationships, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations by individuals and the group (Samovar and Poeter, 1991).

Culture is based upon the concept that "people living together in a society share culture" (Bodley, 2002). More precisely, culture is perceived to encompass issues relating to the

common rules of behaviour that members of one group share amongst each other. These issues are values, beliefs, ideas, attitudes, religion and other factors that have been identified as: Values/ Beliefs, Acceptance/ Maturity of people, Awareness, Communities, Social Support, Religion, Ideas, Attitudes, Change, and Word of Mouth.

5.2.2. Trust

Trust is the essential ingredient for successful long-term business relationships with individuals (Doney, P.M., and Cannon, J.P., 1997; Garbarino, E., and Johnson, M.S., 1999; Moorman et al., 1993; Morgan, R.M., and Hunt, S.D., 1994). As business marketers place greater emphasis on building long-term relationships with their individual, trust has assumed a central role (Viega, et al., 2001; Garbarino and Johnson, 1999; Doney and Cannon, 1997). Trust is a complex social phenomenon that reflects technological, behavioural, social, psychological, as well as organizational aspects of interactions among various human and non-human agents. All business transactions require an element of trust, especially those conducted in the uncertain environment of commerce (Lee, 1998).

Several studies have focused on various issues of trust in e-commerce (Ba, et al., 1999; Beatty, et al., 1996; Bhattacharjee, 2002; Brynjolfsson, E., and Smith, M., 2000; Czepiel, 1990; Gefen, 2002; Hoffman, et al., 1999; Jarvenpaa, et al., 1998; McKnight, et al., 2002a,b, 2000,1998; Ratnasingham, 1998a; Urban, et al., 2000). Most of these studies agree that electronic transactions can only be successful if individuals can trust organizations and products they cannot see or touch, as well as the new virtual channel of transaction with which they may have had little previous experience. Therefore, the issue of trust may be even more important to the investigation of electronic business

than to traditional business since Internet business is based on the individual's trust in processes, in contrast to traditional business, usually involving face to face business, where trust is based on personal relationships and on interactions between individuals and the company.

5.2.3 Technology Quality

The definition of service quality is based on customer led quality definitions where quality is defined as satisfying customer's requirements (Kruger, 2001; O'Neill, et. al., 2001) and rely on the ability of the organisation to determine customers' requirements and then meet these requirements. From the point of view of the organization, it means that customers have to be seen as individuals having individual requirements which they expect to have fulfilled. If a standard level of service quality is defined as having these requirements satisfied, then in an organization claiming to provide high quality services, the customer's requirements will be exceeded and the organization will have satisfied customers creating a more positive image in the marketplace. What is high quality service? High quality service does not mean the minimizing of negative quality (such as poor service or inconsistency) but the maximizing of positive quality (such as fun and luxury); this creates value (Mazur, 1993; Yoo, B. and Donthu, N., 2001; Jun et al., 2001; Minjoon and Shaohan, 2001).

5.3 The Adoption of New Technology

There are many factors that could affect the success and effectiveness of Internet banking in Arab world. A review of the literature and an exploratory study of the Jordanian context suggests that the Technology Acceptance Model (TAM), which is the basis of much of the research into IT diffusion, may be useful even though it may need to be extended to include specific issues of culture and trust on the customer side as well as more basic elements of quality in technology usability and service on the side of the banks (Al-Sukkar and Hasan, 2005, 2004a,b).

5.3.1 Culture

Cultural beliefs are key independent variables in predicting the success or failure of technology acceptance (Straub, et al., 2001). This is due to the fact that the adoption and use of new technologies vary in different social and cultural contexts. Culture and technology are related; they are interdependent, the former determines the latter and is a determining factor in the networks of interaction in any society (Straub et al., 2001).

Culture and Information Technology are linked in numerous studies. Researchers often use the terms "Information Technology" and "Information Systems" interchangeably when the difference has little impact on the study, although the terms differ in concept and scope.

Researchers continually emphasize the importance of culture to the success of Information Technology (Ives and Jarvenpaa, 1991; Shore and Venkatachalam, 1995;

Deans and Karwan, 1997; Palvia, 1998). Some studies rely upon research (Dirksen, 2001), while others rely on multinational surveys for their conclusions (Hasan and Ditsa, 1999). Tricker (1988) provides an excellent framework linking Information Systems and culture using Hofstede's work.

Ein-Dor et al. (1993) list the national cultural factors in information systems. These factors include attitude towards technology progress, interpersonal relations and social commitment, and social norms. These factors are important to this research and form a general basis for grouping the questions in these areas.

Martinsons and Westwood (1997) contrast Western and Chinese philosophies and then develop a theory to explain differences in Information System use. They conclude that these systems are not immune to cultural impact, and they outline the effects of culture on management Information Systems in China. Hasan and Ditsa (1999) observe that culture is probably the most difficult factor to isolate, define and measure. They contrast West Africa, the Middle East and Australia in Hofstede and Hall's indices, and conclude that most Information Technology products and projects suit cultures with low Power Distance, low Uncertainty Avoidance and strong Long-Term Orientation. Two models have been extensively used in the business world: Hofstede's 5 Dimensions (1980; 1983, 1991) and Hall's perception of time and high-context/low-context models (1983).

Hill, et al. (1998) conclude from structured interviews with the Arab-American business community and within five Arab nations that socio-cultural factors are powerful. They observed that the highly Americanised Arab businessmen evidenced strong identification with their original Arab culture.

Following a study of the determinants of process-based Information Technology adoption in the Indian manufacturing sector, Dasgupta et al. (1999) concluded that organizational and environmental factors have a significant impact on Information Technology adoption decisions. A survey by Kandelin et al. (1998) of Indonesian managers found strong similarities among their attitudes towards computer systems, implying that culture, education and familiarity with technology contribute to the acceptance of Information System.

Edberg et al. (2001) identified five key issues for global Information System management. These include language, culture and geography, systems development and support, legal regulations and enforcement, and level of technology. They note that the Japanese culture has not been entirely receptive to computer technologies and that social and group-oriented dynamics of decision-making may explain the Japanese preference for fax over e-mail use.

Dirksen (2001) constructed a meta-analysis of previous research and noted that the universal applicability of Information Technology is a "myth". Finally, Straub et al. (2001) studied the influence of cultural beliefs and values on the inference of IT in the Arab world. They developed a cultural influence model of Information Technology transfer (ITT) that presupposes the effect of culture, price attractiveness, top management support and required staff time on ITT. Surveys and interviews within Jordan, Egypt, Saudi Arabia, Lebanon and the Sudan concluded that Arab cultural beliefs are very strong predictors of resistance to systems and to ITT.

"Culture is a fuzzy set of attitudes, beliefs, behavioural norms and basic assumptions and values that are shared by a group of people, and that influence each member's behaviour and his/her interpretations of the meaning of other people's behaviour" (Spencer-Oatey, 2000). The concept of "culture" and business has been extensively researched (Hall, 1983; Hofstede, 1980; 1991; 1998), both how it affects interpersonal communication, such as culture influences business practices, consumer choice and behaviour (Hofstede, 1991; 1998; Trompenaars and Hampden-Turner, 1993).

Moore and Gregory (2000) reported on the impact of cultural differences in the early stages of an Information System development project. Townsend and Katz (2000) compared several research studies with Hofstede and emphasized the importance of managers making sure that technology fit the business and culture. Jurison (2000), in a reports on a three year longitudinal study of an Information System implementation, concluded that a differentiated Information System implementation strategy for users is more likely to be successful than a single broad-brush strategy applied across nations.

For clarity, recent research is summarized in Table 5.1 the authors, the focus of research, the methodologies (survey, literature review, and interview) and geographic areas, and their findings are presented. In Summary, research has concluded that national culture is a strong influence on information technology, and that social values play a role in the acceptance of technology systems throughout the world.

Table 5.1 Recent Research on Culture and Information Technology

Authors	Focus	Method	Conclusions/Comments
McCoy, Scott 2002	Discussion of Hofstede and Technology Acceptance Model (TAM).	Survey	Culture-TAM
Srite, Mark David 2000;	Discussion of Hofstede and Technology Acceptance Model (TAM).	Survey	Culture-TAM
Straub et al. (2001).	Culture and IT transfer (ITT).	Surveys and interviews in 5 Arab countries,	Culture has a strong influence on ITT.
Edberg, D, et al. (2001).	Issues in global IT mgt.	Global IT scan, Summaries	Culture IT issues includes social values, ability to effect change, colours, bribery, and behaviour. Temperament communication styles, symbols.
Dirksen (2001). PDI. Russia.	Social construction of technology "Glocalization".	Lit scan.	IND as examples in Technology is not neutral.
Katz and Townsend (2000).	Org infrastructure across nations	Lit scan of US, FR, JA.	Culture affects org. IT.
Jurison (2000).	Perceived value and adoption.	3yr longitudinal surveys.	Perception of relative advantage is important to system success.
Moore and Gregory (2000).	SSM in Korea.	Korea interviews, case.	Avoided confrontation, open debate on issues.
Kaye and Little (2000).	Linear growth stage model fails in global ICT.	Lit scan, discussion of industrial nations, West vs. East.	Some evidence of "MacDonaldisation", but strong case for impact act of culture.
Hasan and Ditsa (1999).	IT adoption.	Surveys. AUS. West Africa, Middle East.	Excellent correlation with Hofstede, wrong definition of UMI! Must account for culture
Dasgupta et al. (1999).	IT adoption.	Survey of 46 Indian manufactures.	Determinants are similar in developed and developing nations (singularity of culture?). Org culture is important, and no diff in Indian- owned and with strong foreign allegiance.
Rose and Straub (1998).	TAM.	Surveys, 5 Arab nations.	Even with infrastructure, Resources, policies, technology transfer fails. Arab collectivism.
Palvia (1998).	Define int'l mgt Research issues.	Global lit scan.	Global issues rank first.
Hill et al. (1998).	IT transfers.	Structured interviews, Arab businessmen	Strong cultural aspects.
Kandelin, et al. (1998).	Organisation aspects of IT implementation.	Surveys. Indonesian Managers.	Top mgt support important.
Straub, Keil and Brenner (1997).	Technology Acceptance Model (TAM).	Surveys. Japan, Switzerland US.	TAM model not validated outside US, good Discussion of Hofstede and TAM. Information richness theory, social reserve theory.
Raman and Watson (1994).	Global IS org implications.	2 cases, strong Hofstede.	Culture matters.

Table 5.1 (Continued)

Martinsons and Westwood (1997).	Chinese business.	Lit scan Chinese And western business.	Paternalism personalization, high context communicators may explain diffs.
Shore and Venkntachalam (1995).	Global Analysis and Design stages.	Lit scan.	National culture in the systems development life cycle
Deans and Ricks(1993).	IS and IB.	Global lit scan.	Framework for IS/IB research
Ein-Dor et al. (1993).	Effect of culture on IS.	Global lit scan.	Framework for global IS research.
Ives and Jarvenpaa (1991)	Global IT Management.	Interviews, US. 25managers.	Approaches to solving probe: best System fair global system or parallel systems
Tricker (1988).	Info Resources Mgt.	Lit scan. Chinese and Western business.	Strong Hofstede, 3 levels, Centralization, IND. PDI, role of culture in IT.
Couger (1986).	Motivation of SA and programmers.	Surveys, Singapore, US.	Little difference between Singapore and US managers. Common English language.

Much research in the last two decades has investigated the acceptance and use of information technology. Only a limited number of studies, however, have focused on the acceptance of technology outside of North America.

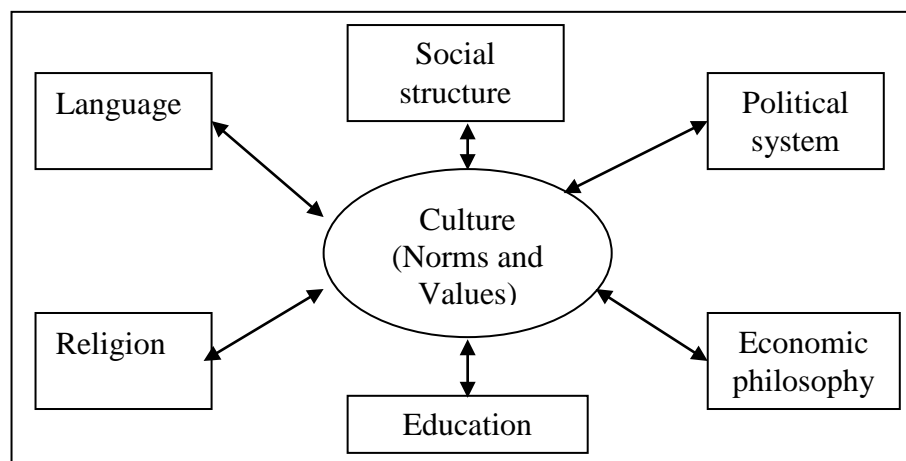
Straub, et al. (1997) endeavour to explain different email adoption levels in terms of culture. These researchers collected data from three countries: US, Switzerland and Japan. Email is highly accepted in the US, moderately accepted in Switzerland and not accepted in Japan. Although the researchers attributed the results to culture, they did not collect any culture data from any of these countries. As a result, they were unable to provide empirical evidence that culture explains any of the variance.

Gefen and Straub (1997) and Straub (1994) found that perceptions and use of information technology differed between Japanese and US workers. Goodman and Green (1992) argued that cultural and political factors are the main explanations for the lack of information technology diffusion in the Middle East since Western assumptions that the free movement of information has positive connotations does violate the

cultural environments of many Middle Eastern countries. The study, “The Role of Culture and Information Technology (IT) policy in the developing world, the case of Egypt and the Arab Culture” (2002), reveals that there is a relationship between Arabic culture and information technology transfer policy in some Arabic countries. In that study, culture was defined as being beliefs and values.

According to Hill 1997 in Figure 5.1 Hill provides an indication of how these factors interact and influence the norms and values of a society.

Figure 5.1 factors Influencing Cultural Norms and Values (Hill, 1997)



Cultural factors are a significant point of difference between customers in the Middle East and those in developed countries and so it is important to study the cultural variables that foster and impede the adoption of new technologies such as Internet banking.

The results of one study of Arab cultural and social factors affecting the transfer of information technology are shown in Table 5.2. The factors in the table below must be considered when introducing new technologies such as Internet banking.

Table 5.2 Summary of Respondents’ Views of Cultural Influences (Hill et al, 1998)

FOCUS GROUPS	ARAB-AMERICAN BUSINESS PEOPLE	FIELD STUDY
<ul style="list-style-type: none"> •Family and kinship obligations •Communal world view •Religion •Valuing the past 	<ul style="list-style-type: none"> •Face-to-face interactions •Allegiance to family and kin group •Concept of time •Religion •Gender relations 	<ul style="list-style-type: none"> •Face-to-face interactions •Allegiance to family and kin group •Concept of time •Religion

5.3.1.1 Cultural Differences

Half a century ago, Kroeber and Kluckhohn (1952) identified more than 160 definitions of culture. Since then, the number of definitions has mushroomed to approximately 400 (Ferraro, 1994). It’s not necessary to address this huge inventory of definitions here, but only the most respected frameworks for examining cultural differences at the national level (Stohl, 2001; Merchant, 2002). These include: Kluckhohn and Strodtbeck’s (1961) framework of six dimensions; Trompenaars’ seven dimensions of culture (Trompenaars, 1993); Edward T. Hall’s (1976) high- and low-context societies; Gannon and associates’ (1994) metaphor perspective; Gudykunst and Ting-Toomeys’ (1988) four styles of verbal communication; and Hofstede’s (1980) four dimensions of cultural values. An extra dimension has been added a couple of years after Hofstede’s main study. Most of the frameworks focus on averages or norms of the cultural systems rather than on precise descriptions (Stohl, 2001; Merchant, 2002). All the studies attempt to represent approximate expected behaviour of individuals in a specific culture, while conceding that not everyone in that culture acts alike. Indeed, variations within a single culture are often greater than those between cultures (Hofstede, 1991). Collectively, these

frameworks contribute to a better understanding of why individuals from different cultures behave diversely, but it is hard to justify one culture being better, or more correct, than another.

5.3.2 Trust

There has been an explosion in the number of electronic transactions in the 21st century. Increased trust in technology leads to more effective utilization and rapid adoption of this technology. Technology trust elements can have a profound affect on speed and efficiency of technology adoption, use, and acceptance. Individuals rely on Internet security and privacy systems for safeguarding personal information and to protect against unauthorized use. While these systems focus on safety, security and privacy, the infrastructures that support predictability, reliability and utilization of technology, which are jointly classified as technology trust, are all underdeveloped and are especially important to the banking sector.

One of the foundations of electronic commerce is the technology itself, since technology facilitates commercial transactions. As commerce has grown and technology developed, the consumer structures – both individuals (consumer to consumer, C2C and B2C) and organizations (B2C and business to business, B2B) – have identified the need for infrastructures that create and promote trust. An alternative notion of technology trust – the Trust in Information Systems Technology (TIST) model – attempts to extend the concept of trust to include the user of the information systems technology.

This research model distinguishes between trust in the electronic channel, trust in the bank as well as trusting behaviour (i.e., adoption of Internet banking). Trust between

individuals and the bank is therefore not based on any kind of face to face experience with the other party. Rather, it will be based on an individual's propensity-to-trust, and on institutional characteristics that enable one person to trust the e-channel without firsthand knowledge (McKnight et al. 1998).

Extrapolating from the literature on attitude change (Eagly and Chaiken, 1993; Fishbein and Ajzen 1975), the literature on technology acceptance (Agarwal and Prasad, 1997; Davis, et al., 1989; Lukas and Spitler, 1999; Mathieson, et al., 2001; Venkatesh and Davis, 2000) and the literature on trust and distrust reviewed above, we propose that trust in technology acceptance requires an environment with two key ingredients: Trust in the Bank as a company or organization and Trust in the electronic channels as wireless trust environment to in which the individual feels secure and has privacy. In general, a good person (i.e. employee)-organization fit will contribute to the long-term good relationship between employees and organizations because value congruence and similarity increase the mutual understanding and trust between employees and organizations.

5.3.2.1 Trust in the Organization or Institution (Bank)

Trust in the institution appears to consist of trust in managerial competence and trust in the organizations support of information technology (Lewicki and Bunker, 1996; Tyler and Degoey, 1996). This dimension reflects trust of both relevant others who might be users of technology with whom one might interact using the information technology (Lewicki and Bunker, 1996; Powell, 1996; Tyler and Degoey, 1996).

5.3.2.2 Trust in Electronic Channels (Technology)

It is clear from the literature that very little is known about trust in technology. Reeves and Nash's (1996) research does suggest that human beings attribute human characteristics to technology. The implication is that human beings may view technology in relational terms (e.g., as a friend, as reliable, as dependable, as trustworthy).

Trust in information systems technology is becoming more important to academics (Lippert, 2001b) and practitioners (Lippert, 2001c, 2001d) alike. The notion of technology trust (Lippert, 2001a, 2002) attempts to quantify the user's trust in the inanimate information systems technologies (hardware and software) employed in daily life. Various organizations provide privacy assurance services, including TRUSTe, BBBOnline, and Web Trust. Each of these assurance seals are designed to increase trust in the privacy and security associated with commercial website applications. Some IS research has investigated commercial Internet trust symbols (Sivasailam, et al., 2002) as dimensions of web assurance in business to individual consumer (B2C) electronic commerce.

5.3.3 Technology Quality

Technology quality is widely considered to be driving corporate market and financial performance (Buttle, 1996). Development in the areas of communication, technology, and consumer trends have prompted marketing scholars in the last 20 years to target technology as a major area of research (Yoo, B. and Donthu, N., 2000).

The desire to be a bank with quality technology is facilitated by a willingness to deliver a good technology rather than a bad one (Schneider, et al., 1997). The biggest challenge that faces a bank is to offer a certain level of quality that meets individuals' requirements (Schneider, et al., 1997). Analysis of individuals' perception of technology quality is a critical key to improve technology quality (Vriens and Harmen, 2000; Bahia and Nantel, 2000) within the banking sector because it provides a good basis for understanding what individuals need during the technology delivery process (Parasuraman, et al., 1985).

Internet banking has undergone a distinct change from informational to transactional form during the past 10 years. This change from traditional banking into an electronic environment has strongly influenced different domains of banking services, particularly the mode of interaction with services and service management, the range of banking products and services, and the quality criteria used to assess banking services (Sahut and Hrnčiar, 2003).

Nowadays, Internet banking provides a variety of services, not only the online search services. Traditionally, online search service provided access to a limited number of streaming media content, however, there is a trend that not only the online search services, but also the online service quality would be the simply need of what Internet users want.

To survive in the highly competitive Internet banking industry, it is apparent that banks need to provide customers with high quality services (Mefford, 1993). In doing so,

bankers are first required to understand the attributes customers use to judge service quality. Next, steps need to be taken to monitor and enhance service performance.

Internet banking is primarily advertising-supported (Steve, 2000); the more users visit the site, the more Internet advertising income the site earns. In a creative and innovative approach to attracting Internet users, companies often provide many services (such as free email, personal virtual space, searching, content providing, etc.) that allow the company to track the users' tastes, needs, and purchasing habits and use this information to get the attention of the users. Therefore, how to keep people coming to visit Internet banking sites might be the one of the most important issues in the information age. Understanding more about the acceptance of the Internet banking service quality can lead to significant improvements in the design of both software and hardware with a corresponding increase in usefulness and ease of use.

Recently, some researchers have applied the TAM and extended its application to the Internet (Agarwal and Prasad, 1997; Atkinson and Kydd, 1997; Lin Lu, 2000; Lederer et al., 2000; Shaw, 1997; Teo et al., 1999). Several past studies have examined the relationship of perceived ease of use, perceived usefulness and attitudes with the usage of information technologies (Adams, et al., 1992; Bagozzi, et al., 1992; Chau, 1996; Davis, 1989; Davis, et al., 1989; Gefen and Straub, 1997; Haynes and Thies, 1991; Hendrickson and Collins, 1996; Igbaria, et al., 1995; Mathieson, 1991; Straub et al., 1995; Szajna, 1996; Taylor and Todd, 1995; Teo, et al., 1999; Thompson, 1998).

5.3.4 Technology Acceptance Model (TAM)

The technology acceptance model (TAM) is one of the most influential research models in studies of the determinants of information systems/information technology (IS/IT) acceptance. In TAM, perceived usefulness and perceived ease of use are hypothesized and empirically supported as being fundamental determinants of user acceptance of a given IS/IT (Chau, 1996).

Technology Acceptance Model (TAM) is one of the most widely employed models of individual acceptance and use of technologies. The model was initially developed and tested in the 1980s (Davis, 1986, 1989; Davis, et al. 1989). Subsequently, the model has been extensively validated across a variety of settings and subjected to theoretical extensions (Venkatesh and Davis, 2000; Venkatesh, et al., 2003). TAM incorporates four key predictors of intention to use technology: perceived usefulness, perceived ease of use, attitude toward using technology, and Behavioural Intention to Use (Davis, et al., 1989; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000).

Intention, in turn, predicts technology use. These and other established TAM relationships are shown in Figure 4.1 in Chapter Four. The key constructs are defined as follows: perceived usefulness is the extent to which an individual perceives that using a system will enhance his or her productivity, and perceived ease of use is the perception of the extent to which using a system is free of effort (Davis, et al., 1989). Attitude towards using technology is the affective reaction—like or dislike—to using a specific system (Davis, et al., 1989).

“Although the last few years have witnessed an explosive growth in electronic commerce activities in many parts of the world, very little is known about the exact nature, dynamics and impact of this phenomenon. There is a certain paucity of systematic investigations reported in the literature” (Lee, M., 2001, p. 3). E-Commerce relies heavily on Information Technology, and the Internet, specifically the World Wide Web, is receiving increasing attention from businesses. E-Commerce, as a global transaction system, must fall under the same multicultural scrutiny and research as previous Information Systems and Information Technologies. The success of e-Commerce across national borders is a function of several variables, including national economies, national literacy, national cultures, telecommunications availability, and technology penetration and acceptance (Tillqtlist, 1997; Pitkow and Kehoe, 1996). Little research has examined Web usage and its social implications.

5.4 The TAM Expanded for Use in Less-developed Countries

In developing countries such as Jordan, there are many barriers to computer use in general and to the success of specific applications, Internet Banking in particular. An understanding of how to better support knowledge workers in the age of computerization is an important issue for planning units in the Middle East and elsewhere in the developing world. Such knowledge could be used to develop and test potential explanatory models that may be appropriate frameworks on which to base both general studies of IT diffusion and specific studies, such as those of Internet banking adoption, in less-developed regions such as the Middle East.

The results of the interviews in the exploratory study on Internet banking in Jordan, together with an interpretation of the literature, has revealed that decision-makers in

banks have realised that Internet banking is a risky but essential step in remaining competitive in a growing, global market place. All managers plan to adopt or expand services through the Internet but are concerned about factors that relate to the perceived ease-of-use and perceived usefulness, i.e. components of the traditional TAM model. There is, however, confusion on how to improve the features of computers that make them easy to understand and operate in the Jordanian context. There is a need for new operating environments to be just as intuitively appealing to Arab knowledge workers as they have been to knowledge workers in developed countries. There is a need to compare the use of computer applications to manual tools for accomplishing the same tasks in their unique situation, in order to help users to see the usefulness of computers and Internet systems.

The need for an expansion of the TAM, incorporating additional factors, has already been demonstrated in regard to trust (Gefen, et al., 2003). Our research has led to an extension of the TAM to include two sets of factors, one set from the consumer side and one set from the side of the bank, that relate to the two main determinants of attitude and behaviour in the use of technology. These are shown in Figure 4.3 in Chapter Four as an expansion of the TAM. They include cultural factors and issues of trust on the consumer side, and issues of technology and quality of service on the side of the bank. In the original TAM, these factors are not specified. In our model, PEU and PU are now intermediate states, dependent on other independent variables which can be determined in the context of the study and which will be investigated to see how they directly affect PEU and PU. Explanations of these additional factors will now be presented.

5.4.1 Culture

PC skills and technology acceptability may play major roles in global e-Commerce. In a survey of five Arab nations, Rose and Straub (1998) used the Technology Acceptance Model (TAM) to compare perceived usefulness and actual use of computers across national borders, and concluded that cultural biases play a role in the Technology Acceptance Model (TAM) when applied to PC use. Harris and Davison (1999) identified considerable differences in PC involvement surveys across users in China, Hong Kong, Malaysia, New Zealand, Tanzania and Thailand, and attributed those differences, in part, to culture.

Al-Khaldi and Wallace (1999) observed differences in PC utilization between Canada and Saudi Arabia. They identified factors influencing PC use in a survey of 200 knowledge workers. Their findings suggest that, in addition to culture, factors such as differing perceptions, caused by differences in education and in prior use, may affect PC use in different nations. Their study was an important model for this research, and is also discussed under the section on Attitude and Information Technology.

Straub (1994) studied the effect of culture on e-mail and FAX technologies in Japan and the US. He found that Japanese firms used email to a much lesser extent than US firms did; Japanese firms preferred to use FAX. He concluded that culture is one possible explanation for this. He used Hofstede's work to hypothesize that high UMI and the structural features of the Japanese written language could explain the differences in usage.

Cheung and Lee (2001) developed a conceptual model of trust and risk in Internet marketing. According to their study, involving 400 business students at the City University of Hong Kong, e-Commerce trust is affected by several factors, including the consumer's propensity to trust, the vendor's trustworthiness, and chain external factors such as the nation's legal framework, the nation's cultural environment, and prior positive experience.

The study concluded that people with different cultural backgrounds, personality types and developmental experiences, vary in their propensity to trust. Although the study referred to Hofstede's work, differences in cultural environments and experience are not tested.

Stafford and Stafford (2001) identified motivations for the use of commercial Internet sites, including process, content, and socialization gratifications. They developed a list of descriptive adjectives for Web use, and ranked them according to survey responses. Their findings supported previous research and concluded that Web developers must understand their users in terms of personal and social contexts. Bingi et al. (2000) identified four areas of challenge facing global electronic commerce. These include economic, social, technical and legal areas.

Social aspects, including cultural diversity, play a major role in areas such as security, privacy, trust, and global trading methods. Research on the relationships between culture and e-Commerce are summarized in Table 5.3. The authors, their focus of research, their methodologies (survey, literature review, and interview) and geographic

areas, as well as their findings, are all presented. Special note of the applicability to this study has also been made.

Table 5.3 Recent Research on Culture and E-Commerce

Authors	Focus	Method	Conclusions/comments
Cheung and Lee (2001)	Trust in eCommerce.	Surveys of Hong Kong students.	Culture and prior experience are factors.
Stafford and Stafford (2001).	Website motivation.	Global online survey	Socialization is a web use motivator.
Binge, P. and Khamalah, J. (2000).	Challenges.	Global lit scan, observations.	Social challenges include privacy and security, cultural diversity, trust and absence of "touch/feel". Other challenges include access, infrastructure, IPR, taxation, regulation.
Harris (2000).	EUC success.	Global lit scan.	5 groups of studies: Individual characteristics, Info characteristics, Org Influence, discomfort, TAM.
Al-Khaldi and Wallace (1999).	Attitude and PC use in Saudi Arabia.	Student surveys, Canada And Saudi.	Tests Triandis theory, Thompson anodes. PC learning curve has impact.
Nelson and Todd (1999).	Managing EUC.	Mgt surveys in 12 orgs.	Control and formal approval processes Common
Lee. H. (1998).	Web auctions.	Data scan in Japan.	Higher prices result due to vendor easements and broader markets.
Pitkow. J. and Kehoe. C. (1996).	Trends in user population	Global surveys.	Changing rapidly.
Straub (1994).	Email and IT diffusion.	Surveys, interviews, Japan, US.	Excellent methodology, strong Hofstede, strong Cultural effects.

The Technology Acceptance Model is influenced by a more general system of beliefs, including cultural beliefs, which can be inferred from several recent studies outside the cross-cultural domain. For example, some studies aim at integrating individual differences in variables (e.g. age, education and gender) into the Technology Acceptance Model (Gefen and Straub, 1997; Agarwal and Prasad, 1999) and were based on connections between the beliefs produced by a groups' common socialization experience and their attitudes towards Information Technology.

Similarly, Venkatesh and Davis (1996) showed that an individual's perception of a system's ease of use was linked to their general 'computer self-efficacy'. Moreover,

Chau (1996) showed that the concept of perceived usefulness encompasses both near-term and long-term usefulness in the minds of users, and that the latter had a positive impact on behavioural intentions to use a technology. In effect, this conceptualization parallels the influences of Hofstede and Bond's (1988) dimension of long-term orientation. Similarly, Thompson et al. (1991) conceptualized perceived usefulness to include 'near-term job fit' and 'long-term consequences of use'. Thus, while there is evidence of cultural influence on Information Systems, as well as on web content and use, there is a lack of research on the role of culture, the Web and the Internet. Furthermore, very few studies have tried to determine the effect of the other Hofstede's dimensions on TAM.

Hofstede's work represents the largest study attempting to classify nations based on broad value differences. His work still has relevance today (e.g. see Table 5.4); in fact, most research on culture uses his work. Even those researchers who disagree with his dimensions, and attempt to create other scales, compare their work with his (for example, Maznevski, et al., 2000). Hofstede's work has been replicated and reviewed by many experts. In 1994, Sondergaard examined review citations and replications of Hofstede's work. Between the years 1980 and 1993, 1036 quotations were made from Hofstede's work. Consequences appeared in journals (Sondergaard, 1994). Hofstede's work was based on "a rigorous research design, a systematic data collection and a coherent theory to explain national variation" (Sondergaard, 1994, p. 449).

Table 5.4. Research on the Influence of National Culture on IT Acceptance and Implementation

Cultural dimension	Implications for Information Technology implementation and acceptance
Uncertainty avoidance	<p>High uncertainty avoidance cultures may only adopt less risky, older Information Technology (Hasan and Ditsa, 1999). <i>Empirical</i></p> <p>Fear of the unknown effects of technology makes employees more resistant to technological change (Hill <i>et al.</i>, 1998). <i>Empirical</i></p>
Power distance	<p>Information Technology can increase power among skilled Information Technology workers giving them more equity with managers and motivating their acceptance (Hasan and Ditsa, 1999). <i>Empirical</i></p> <p>In hierarchical societies, technological changes must come from top management (Hill <i>et al.</i>, 1998). <i>Empirical</i> a Participative development project methodology may not be appropriate in high power distance societies such as Arab Gulf countries (Abdul-Gadar, 1997). <i>Theory</i></p>
Individualism/Collectivism	<p>Perceived social presence of application affects acceptance (Straub, 1994). <i>Empirical</i></p> <p>Information Technology support for individual or cooperative work practices affects acceptance (Hasan and Ditsa, 1999). <i>Empirical</i></p> <p>Kinship groups and work groups act as references for Arab workers in decisions about Information Technology (Hill <i>et al.</i>, 1998). <i>Empirical</i></p>
Long-term versus Short-term Orientation	<p>Information Technology change makes long-term planning more important and this can cause problems in cultures with short-term orientation (Hasan and Ditsa, 1999). <i>Empirical</i></p> <p>Loyalty to national traditions is seen as an impediment in focus groups of Arab businessmen (Hill <i>et al.</i>, 1998). <i>Empirical</i></p> <p>Fatalistic orientation towards the future leads to resistance to long-range Information Technology planning in Arab Gulf countries (Abdul-Gadar, 1997). <i>Theory</i></p> <p>Perceived near-term usefulness has a more significant influence on intention to use than perceived long-term usefulness in a US sample (Chau, 1996). <i>Empirical</i></p>

To study the cultural variables that foster and impede the adoption of new technologies such as Internet banking services. The concept of culture is complex because cultural systems are always changing, but there is a tangible relationship between culture, values, beliefs and the transfer of information technology. For example, culture can include geography, language, currency, social norms and traditions. These variables certainly have an influence on the transfer of technology from non-Arab cultures to Arab ones.

By choosing Hofstede's model, the researcher followed the advice of many researchers who argued that cross-cultural comparisons have value only if they're related to a formulated theory. The present study uses Hofstede's (1980, 1991) model for three reasons. Firstly, it has been shown to be stable and useful in numerous studies across many disciplines; secondly, his research and arguments are compelling to organizational researchers because, even before empirical testing, links can be seen between his five dimensions and many aspects of behavior; and thirdly, Hofstede's framework explicitly links national cultural values to communication practices; communication practices using new Information Technologies are central. Furthermore, many researchers have used Hofstede's culture in their attempt to explain the role of adopt new Information Technologies in the life.

5.4.1.1 Hofstede's Dimensions of Culture

Hofstede's (1980, p. 21) notion of culture is that it is "the collective programming of the mind which distinguishes the members in one human group from another." In cross-national research, people from different cultural and ethnic backgrounds are referred to as having "different mindsets," where "mindsets" refers to all those concepts relating to cultural similarities and differences (Hofstede, 1991). One important assertion by Hofstede is that culture "is learned," and not only "inherited." This supports the theory of beliefs that states that individuals can both learn and unlearn cultural traits, depending on environmental influences such as the adoption of new information technologies.

Culture is a complex notion that is best assessed in terms of multiple dimensions. It is composed of symbols, heroes, rituals, and values that are learned from the environment.

This learning starts at birth and continues throughout a person's life. Culture shapes individuals' values and affects behaviour (Hofstede, 1980; 1984; 1991). Hofstede (1984) defines culture as the "collective programming of the mind" (p. 13). Is it possible that national culture affects the use of technology?

The four common problems facing people worldwide, as theorized by Inkeles and Levinson (1969), are found to exist in the IBM data collected by Hofstede (1980). The basic problem areas theorized by Inkeles and Levinson correspond to the dimensions Hofstede labelled power distance, collectivism versus individualism, femininity versus masculinity, uncertainty avoidance and Long vs. Short-Term Orientation, the last one was added by Hofstede at 1991.

While Hofstede's system is certainly not perfect, several studies confirmed the validity of its dimensions (Ronen and Schenkar, 1985; Straub, 1994; Fernandez et al.,1997; Sondergaard, 1994) and used them to account for empirical observations (Earley 1993, Straub, 1994; Sondergaard, 1990, Hofstede, 2001, for a review of follow-up studies, and Smith, 2002 for an in-depth analysis and critique).

After more than 25 years of use, both academics and management groups still use Hofstede's dimensions of culture to understand differences between national cultures. In 1980, Hofstede published *Culture's Consequences: International Differences in Work-Related Values*. In this book, he detailed the results of his massive empirical study in which he isolated four dimensions that could be used to measure the variation in culturally determined values between people from two or more countries. Below are Hofstede's (1991) descriptions of the four dimensions, namely: Uncertainty Avoidance, Power Distance, Masculinity versus Femininity, Individualism versus Collectivism,

and the fifth dimension later added by Hofstede (1991), Long-term versus Short-term Orientation.

Uncertainty Avoidance:

Uncertainty Avoidance is the extent to which the members of a culture feel threatened by uncertain or unknown situations (P. 263).

In 1991, Hofstede published a more accessible version of his research publication in *Cultures and Organizations: Software of the Mind* [Hofstede]. His focus was not on defining culture as refinement of the mind (or as "highly civilized" attitudes and behaviour), but rather on highlighting essential patterns of thinking, feeling, and acting that are well established by late childhood. These cultural differences manifest themselves in a culture's choices of symbols, heroes/heroines, rituals, and values.

Power Distance:

Power distance is the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally (p. 262).

Masculinity/Femininity:

Masculinity stands for a society in which social gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life (p. 262).

Femininity stands for a society in which social gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life (p. 261).

Individualism/Collectivism:

Individualism stands for a society in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family only (p. 261).

Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive groups in which, throughout people's lifetime, continue to protect them in exchange for unquestioning loyalty (p. 260).

Hofstede developed the original four dimensions of culture while working for IBM between the years 1967 and 1973. Over 16,000 responses to a survey instrument from countries were Factor analysed, resulting in the four dimensions named above.

Long-term Versus Short-Term Orientation

The dimension called Long-term versus Short-term Orientation was identified through additional research derived from non-Western input. As such, Hofstede's value dimensions promised to be more appropriate for cross-national research that encompassed non-Western societies. Hofstede described this dimension as follows:

Long-term orientation stands for the fostering of virtues oriented toward future rewards, in particular perseverance and thrift (p. 261).

Short-term orientation stands for the fostering of virtues related to the past and present, in particular respect for tradition, preservation of 'face' and fulfilling social obligations (P. 262).

Hofstede's research and survey instrument will be described later in more detail. Following are other studies and classifications that either directly or indirectly validate one or more of Hofstede's five dimensions (see Table 5.5):

Table 5.5. Culture dimensions according to Hofstede, 1980, 1991.

Hofstede's Dimension	Definition
Uncertainty Avoidance	Uncertainty Avoidance is the extent to which the members of a culture feel threatened by uncertain or unknown situations (P. 263).
Power Distance	Power distance is the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally (p. 262).
Masculinity/Femininity	Masculinity stands for a society in which social gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life (p. 262). Femininity stands for a society in which social gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life (p. 261).
Individualism/Collectivism	Individualism stands for a society in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family only (p. 261). Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive groups which, throughout people's lifetime, continue to protect them in exchange for unquestioning loyalty (p. 260).
Long-term versus Short-term Orientation	Long-term orientation stands for the fostering of virtues oriented toward future rewards, in particular perseverance and thrift (p. 261). Short-term orientation stands for the fostering of virtues related to the past and present, in particular respect for tradition, preservation of 'face' and fulfilling social obligations (P. 262).

5.4.1.2 Culture as External Variable

Culture is an essential but very difficult concept in behavioural and social sciences, and hence has many different conceptualizations and definitions (Smelser, 1992). In the field of anthropology, culture often refers to “whatever is distinctive about the ‘way of life’ of a people, community, nation or social group” (Hall, 1997, p.2); e.g. its customs, language, material artifacts, etc. In sociology, culture is commonly defined as being an integrated set of learned behavioural patterns that are shared by, and characteristic of, the members of any given society, including everything that a group thinks, says, does and makes – its shared systems of beliefs, attitudes and feelings .

Hofstede defines culture as a set of shared assumptions that result in a common frame of reference by members of a society. Culture is viewed as the ‘mental software’ people carry and use when, for example, forming a specific belief (Veiga, et al., 2001). He defines culture as being the specific patterns of thinking that affect, and are reflected in, the meaning people attach to their behaviour (Hofstede, 1994). In his work, Hofstede (1984) has identified several specific patterns in which the values and beliefs that constitute a national culture are arranged. These dimensions, also called indices, function as tools for gauging and measuring different aspects of culture (Jack, 2002). Hofstede defines four specific dimensions of cultural variation: uncertainty avoidance, power distance, collectivism vs. individualism, and femininity vs. masculinity (and later added long-term vs. short-term orientation) (Veiga et al., 2001).

Uncertainty avoidance can be defined as the extent to which people feel threatened by ambiguous situations and have created beliefs and institutions that try to avoid these situations (Hofstede, 1984). Cultures with strong uncertainty avoidance tend to have a

strict code of behaviour; they tend to involve a variety of people in decision making processes and require more information and security in order to cope with situations they perceive as unstructured, unclear or unpredictable. In cultures with low uncertainty avoidance, in contrast, people are more likely to accept risky and ambiguous situations; they tend to be more relaxed and contemplative, and cherish innovation and broad assignments with open objectives (Hofstede, 1984).

Power distance is the extent to which people accept social inequality; i.e. that some people will receive the larger share of the benefit and others the smaller share. Cultures with low power distance usually strive for equality of power, decentralization of power, and justice (Hofstede, 1984). In such a culture, people value competence more than superiority in the hierarchy. On the other hand, in cultures with a high power distance, the social elite, such as one's superiors at work, have a great influence on the behaviour, attitudes and beliefs of a person. People are much more likely to form attitudes towards a specific behaviour and to behave in a certain way based on their perceptions of their superiors' attitudes (Veiga et al., 2001).

Individualism is defined as the tendency to value one's independence over other considerations; the tendency to place one's personal interests above those of the rest of society (Veiga et al., 2001). Collectivist cultures focus on the society as a whole, the well being of everyone, and on loyalty to the groups that people belong to. The group that one belongs to becomes the primary source of that person's individual identity and people tend to seek approval, status and support through group affiliation (Veiga et al., 2001). Individualism influences each person's behaviour in terms of self- motivation, self- actualization, and determination to perform whatever behaviour is most beneficial

for that person. Individualistic cultures are also highly competitive and tend to promote individual decision-making, while collectivist cultures tend to behave in the group's best interests rather than in one's individual interest. Within these groups, people strive to avoid conflict, and to build conformity and solidarity (Hendon, et al., 1996).

Masculinity vs. femininity is the dimension that is hardest to conceptualize and validate (Veiga et al., 2001). Assertiveness, independence, success, money, and high self-achievement tend to characterize the values of masculine cultures. People's behaviour in cultures with high masculinity tends to be competitive and very goal and earnings driven. Traditional masculine cultures tend to follow a 'live- to- work' belief. Feminine cultures mainly focus on the quality and benefit of behaviour to all people involved. They value caring for each other, security, cooperation, work freedom and low stress environments. People in these cultures believe in 'work-to live' ethics (Hofstede, 1984).

Hofstede identified the above discussed dimensions, along which the dominant value systems of a variety of countries were found to differ in, and established them as a yardstick with which to measure differences between cultures (Jack, 2002). As mentioned above, culture as a whole is not easily identifiable, and even harder to measure. Hofstede's dimensions of culture are limiting, reducing the concept of culture down to the values that a group of people articulate (Jack, 2002). However, the concept of culture as a whole is much richer. A variety of studies have used Hofstede's cultural dimensions successfully as a means of measuring the values and attitudes of a culture – as introduced above. In addition, the simplicity of the model lends itself to studies with limited timeframes and resources, such as this one. Hofstede's suggestions for measuring basic differences in cultural values are concrete and fairly easy to measure.

5.4.2 Trust

An explosion in the number of electronic transactions has occurred in the 21st century. Increased trust in technology leads to more effective utilization and to rapid adoption of technology. The technology trust elements can have a profound affect on the speed and efficiency of technology adoption, use, and acceptance. Individuals rely on Internet security and privacy systems for safeguarding their personal information and for protection from unauthorized use. While these systems focus on safety, security and privacy, infrastructures supporting predictability, reliability and utilization of technology, all of which are classified as being elements of technology trust and are of special interest to the banking industry, are still underdeveloped.

An underlying foundation of electronic commerce is the technology that facilitates the electronic transactions. As commerce has grown and technology developed, the consumer structures – both of individuals (consumer to consumer, C2C and B2C) and of organizations (B2C and business to business, B2B) – have identified the need for infrastructures that create and promote trust. An alternative notion of technology trust – the Trust in Information Systems Technology (TIST) model – attempts to extend the concept of trust to the user of the information systems technology (Brian, et al., 2003).

The model distinguishes trust in electronic channels and trust in the bank from trusting behaviour (i.e., adoption of Internet banking). Trust between individuals and the bank will not be based on any kind of experience with the other party. Rather, it will be based on an individual's propensity-to-trust, and on institutional characteristics that enable one person to trust the e-channel without firsthand knowledge (McKnight et al., 1998).

Extrapolating from the literature on attitude change (Eagly and Chaiken, 1993; Fishbein and Ajzen, 1975), the literature on technology acceptance (Agarwal and Prasad, 1997; Davis, et al., 1989; Lukas and Spittler, 1999; Mathieson, et. al., 2001; Venkatesh and Davis, 2000) and the literature on trust and distrust reviewed above, it can be proposed that trust in technology acceptance takes two key trust ingredients: Trust in the company or organization and Trust in electronic channels. In general, a good person-organization fit will contribute to the long-term good relationship between employees and organizations because value congruence and similarity increase the mutual understanding and trust between employees and organizations.

Trust is the key to success for both e-Commerce and m-Commerce (Dahlberg, et. al., 2003; Grandison and Sloman, 2000; Hertzum, et al., 2002; Papadopoulou, et al., 2001). Trust is a major facilitator of wireless transactions because of the natural human need to understand the social surroundings of the virtual environment.

Based on prior trust and technology acceptance research, Gefen, et al. (2003) introduced trust as another construct of the Davis' TAM. An empirical investigation that included 213 subjects confirmed the positive relationship between trust and intended usage of e-Commerce websites. That study also discovered that perceived ease of use of the site positively influences the degree of trust in the site. First, high ease of use of a website allows people to quickly and effortlessly locate necessary information. Second, high ease of use is associated with a good level of site usability and reflects a provider's intention to invest in the customer-eVendor relationship. By following a similar line of reasoning, Dahlberg, et al. (2003) proposed the application of this trust-enhanced

technology acceptance model in order to investigate user acceptance of Internet applications.

With regards to this study, trust is introduced as an additional construct of the suggested model. It is hypothesized that the trust-TAM causal relationships may potentially explain a greater proportion of the variance in user behavioural intentions towards Internet applications. It is expected that the research will show that trust in the e-channel and trust in the bank will have some effect on the adoption of Internet banking. By separating effects of trust from those of perceived risks, we may better understand the influences of these two variables on adoption behaviour.

5.4.2.1 Trust in the Bank

Trust in the organization or institution. Institution trust appears to depend on managerial competence and trust in organization support of information technology (Lewicki and Bunker, 1996; Tyler and Degoey, 1996). This dimension reflects trust of both relevant others who might be users of technology with whom one might interact using the information technology (Lewicki and Bunker, 1996; Powell, 1996; Tyler and Degoey, 1996).

5.4.2.2 Trust in Electronic Channels

Trust in information systems technology is becoming more important to academics (Lippert, 2001b) and practitioners (Lippert, 2001c, 2001d) alike. The concept of technology trust (Lippert, 2001a, 2002) attempts to quantify user's trust in the inanimate elements of information systems technologies – hardware and software – employed in daily life. Various organizations provide privacy assurance services, including TRUSTe,

BBBOnline, and Web Trust. Each of these assurance seals are designed to increase trust in the privacy and security associated with commercial website applications. Some IS research has investigated commercial Internet trust symbols (Sivasailam, et al., 2002) as dimensions of web assurance in business to individual (B2C) electronic commerce.

Reeves and Nash's (1996) research does suggest that human beings attribute human characteristics to technology. The implication is that human beings may view technology in relational terms (e.g., as a friend, as reliable, as dependable, as trustworthy). Design of electronic channels is an important issue in today's increasingly electronic markets. Our proposed trust-enhanced TAM, is based on both the original TAM (Davis, 1989; Davis et al., 1989) and the integrated TAM (Venkatesh et al., 2002).

5.4.3 Technology Quality

Applying the TAM to Internet banking service quality can also lead to a better theoretical understanding of possible important differences between the quality of Internet banking service and that of other types of end user systems.

The TAM model posits that the actual use of a technology can be predicted by the user's behavioural intention and by his or her attitude towards use, which are in turn influenced by a technology's perceived ease of use and perceived usefulness. Though some recent research has further modified the TAM and extended its application to the Internet or WWW (Agarwal and Prasad, 1997; Atkinson and Kydd, 1997; Teo, et al., 1999), the related studies of usage behaviour in the Internet environment are still

primitive. The extent to which external variables will affect usage behaviour and intentions is still not clear.

Many measurement instruments have made special contributions in the development of quality perception studies (Zornoza and Llusar 2000). Zornoza and Llusar (2000) argued that these measurement tools contributed to the measurement of technology quality and to the study of how quality could influence a company's income. There have been numerous studies identifying the key service quality dimensions of the traditional banking environment, where personal interaction between customers and bank employees is a primary service delivery and communication channel. However, relatively little literature has investigated service quality attributes in the Internet banking industry, where non-human interaction via the Internet is a main service delivery and communication channel.

Past research on measuring the technology quality of Internet banking is scarce. Online Service Quality as the basis of discrepancies between customer expectation and perception of the service being offered. Everyone knows that consumer complaints and compliments have long been a source of feedback on bank performance. Customers are looking for cost savings, efficiency and convenience; these could ultimately be provided through the Internet services. Joseph et al. (1999) investigated how electronic banks are performing. They looked at six factors; convenience/accuracy; efficiency; feedback/complaint management; accessibility; queue management and customisation. Online Service Quality consists of four dimensions: Convenience/Accuracy, Feedback/Complaint management, Efficiency, and Security/Privacy. The importance of significant antecedents such as Convenience/Accuracy, Feedback/Complaint

management and efficiency, as well as the Security and Privacy to Internet banking usage, is that they could provide companies with a referential point for designing mechanisms and improving users' perceptions of the Internet banking (Al-Sukkar and Hasan, 2005; 2004a,b).

5.4.3.1 Dimensions of Technology Quality

With the prosperity of the Internet, the huge number of web sites have also proliferated a variety of online services. Online service quality is one of the most important factors related to user behaviour and has lead the measuring of online service quality to become the critical issue of the day (Shohreh and Christine, 2000).

1. Convenience/Accuracy: I am able to access my bank at a time convenient to me (7 days a week, 24 hours a day) and able to conduct my banking transactions accurately.
2. Feedback/Complaint management: The Internet enables me to return feedback or my complaints to my bank immediately, or within 24 hours, and it helps me answer any questions I have about my bank.
3. Efficiency: Efficiency refers to the ability of customers to get to the Web site, search for information and to then log out with minimal effort. When transactions are efficient, there are no wait times and the system connects customers with the bank immediately. The speed of response reflects the efficiency of Intranet Banking in responding to user needs.
4. Security/Privacy: Security of transmission; privacy protection-System to protect financial transaction and information.

Security has been widely recognized as being one of the main obstacles to the adoption of Internet banking. Many studies suggest that in order for customers to become willing users of Internet banking, banks must first convince their customers that Internet banking and transactions are secure. Security is a very important aspect in the debate over the challenges facing Internet banking. Further, it has been stated in numerous studies that the greatest challenge to the Internet banking sector will be winning the trust of consumer in issues of security and confidentiality (Runge and Zimmermann 1997; Furnell and Karweni 1999; Bestavros 2000). Adam, et al. (1999, 123) claimed that ensuring security and confidentiality is a fundamental prerequisite for any commercial activities involving sensitive information. They state that security is the leading barrier to the spread of Internet business on the Internet. The rapid development of technology has lead to significant contributions in securing the Internet for Internet business. However, challenges remain in this area, and security remains a substantial issue for the development of Internet businesses, especially Internet banking.

In the Internet banking sector, banks and other financial institutions need to store sensitive data about their customers (Bestavros, 2000). However, empirical studies have found that “consumers are often reluctant to share personal information for fear that their financial life will become an open book to the Internet universe” (Bestavros, 2000; Bhimani 1996; Furnell and Karweni 1999). However, security technology is already available and is in use; the question to be addressed today is, simply, how to convince consumers of the security of the Internet. For example, Gesner (1996) argued that security is becoming a non-issue as solutions to security and confidentiality problems are found. He goes on to say that there are three main developments taking place in the area. First, Web browsers are incorporating 128-bit RSA encryption key technology that

allows customer information and requests to remain private as the data flows across the Internet. Second, the use of digital certificates has made identification easier and cheaper. Third, firewalls ensure that “bad guys can’t gain unauthorized access to both customer information, and back office systems are improving daily” (Gesner, 1996). Regarding improvements in Web technology, Gesner (1996) argued that the Internet will soon be the most secure way of doing business. Educating customers on these subjects is of key importance. Hence, nobody will benefit if customers do not trust in the bank’s ability to deliver security.

It had been suggested by Gervy and Lin (2000) that one way to reduce security concerns is to cultivate brand equity. Brand equity appears to play a major role in consumer decision-making about products and bank services. By enhancing brand equity, marketers can move consumers online. According to Furnell and Karweni (1999), awareness is the key to increasing consumer confidence. Security issues remain the number one challenge for Internet banking service providers. Providers must win the customer’s trust through education and marketing strategies. Service providers on the Internet have made major developments in several important areas including, for example, in the methods of payment available via the Internet. Consumers can nowadays choose between many modes of payment: if one does not feel comfortable in giving his or her credit card number on the Internet, he or she can choose another mode of payment. Many Internet shopping sites have made agreements with banks operating on the Internet, allowing consumers to pay for their shopping using traditional paper bills. In the view of some international experts, security concerns arise from the use of open networks, i.e. consumers are afraid their personal financial information will

become available to others when paying through the Internet. (Thorton Consulting, 1996; Daniel, 1999; Furnell and Karweni, 1999; Bestavros, 2000).

The need for security has already been recognized within the Internet banking community, and a number of technologies have been developed to make Internet transactions more secure. The most common approach currently used to secure online transactions is the Secure Socket Layer (SSL) protocol, developed by Netscape (Frier et al. 1996), which is a general cryptographic protocol used as a transport by the TCP/IP suite for securing bi-directional communication channels. An alternative to the SSL is the secure Internet transaction (SET) standard developed by a group of major credit card companies (e.g. VISA and MasterCard) for use in online e-commerce transactions.

The importance of trust has been a burning issue for many years in Internet commerce. Consumers see the Internet as a global public network, which means that the issue of trust between customer and bank is of paramount importance for transactions on the Internet. According to Ratnasingham (1998), the relationship between customer and bank needs to be completely trustworthy. In order to achieve this kind of relationship, at least three security requirements must be satisfied: (a) if the other party is not directly known, then there needs to be additional involvement by someone else known to both sides (a third Party/ central bank), (b) data needs to be secured at all stages, and (c) common rules need to be established.

In conclusion, banking via the Internet needs the most secure financial system in the banking business (Nehmzow, 1997; Furnell and Karweni, 1999). For example, in Jordan, one of the new countries in the field of Internet banking, security problems have

arisen in Internet banking. In fact, banking via the Internet is considered less secure than banking via ATMs. Internet banking will always have its opponents, and one frequently used criticism of Internet banking is of its security (Shuqir, O., 2003).

5.4.4 Perceived Usefulness and Perceived Ease of Use

Earlier research on perceived usefulness seems to indicate that it is a good indicator of technology acceptance (Davis, 1993; Taylor and Todd, 1995; Chau, 1996; Jiang et al., 2000). The technology acceptance model (TAM) has received much validation through the years due to numerous replications and applications of the work. In studies on the determinants of information systems acceptance, TAM continues to be one of the most influential models in use today (Chau, 1996).

In the TAM, the term perceived usefulness originally used to refer to job effectiveness, performance and productivity (Davis, 1989). Perceived usefulness has been found to offer useful diagnostic insights into the influences affecting user attitudes about use, and the intention to use, new technologies. Other than its indirect effect on intention to use via attitudes, there is also a more direct effect of perceived usefulness on intention to use (Davis et al., 1989; Davis, 1993; Taylor and Todd, 1995). Triandis (1980), incorporating some concepts of expectancy theory, suggested that the expected consequences of a behaviour are a great influence on actual behaviour. The expected consequences of behaviour are, in turn, evaluated according to perceived usefulness of that behaviour. Individuals often make behavioural decisions based on the desirability of the perceived usefulness.

User satisfaction can be greatly influenced by perceptions of ease of use. In the TAM, perceived ease of use is considered a major influence on attitudes towards using a technology. This influence arises, in part, from the individual's evaluation of the mental effort involved in using the technology (Davis, 1989). The twin concepts of perceived usefulness and perceived ease of use are related, but quite different, constructs. Increases in performance may occur if the perceived ease of use is improved. Empirical research by Davis (1989) testing the general applicability of the trade off between observed usefulness and ease of use, and assessing the effect of external intervention on these two internal behavioural determinants, had mixed results (Davis et al., 1989; Davis, 1993; Chau, 1996; Venkatesh, 1999).

However, several empirical studies did manage to confirm the effects of ease of use on attitudes towards using technology (Al-gahtani and King, 1999; Lu and Gustafsen, 1994; Moore and Benbasat, 1991; Venkatesh and Davis, 1996). It is Venkatesh's belief (Venkatesh, 2000) that perceived ease of use is a major determinant of the user's usage intentions and behaviour towards any emerging information technology or system.

5.4.5 Attitude Toward Using and Behavioural Intention to Use

In addition to this study's focus on the consumer decision making process, identified as being a major determinant in the adoption of new technology (Modahl, 2000, 8-11), this study also investigates the origins and development of the concept of attitude. This investigation begins with a discussion of the differences between the related concepts of belief, attitude, and intention. While many people mistakenly see belief and attitude as being the same thing, the separation of the two concepts is extremely important in any discussion of the subject in academic literature.

When an individual feels an internal stimulus or is exposed to external environmental stimuli, cognitive processes are in operation, resulting in an affective response (Peter and Olson, 1990). A stimulus can, in general, be defined as an event or change in physical energy, whether internal or external to the organism, resulting in neural activity and leading to a reaction (Oxford English Dictionary, 1989). We can distinguish between two different cognitive processes: the process of integration and the process of interpretation. The interpretation process includes the customer's interpretation of the meaning of significant aspects of their physical and social environment as well as the stages in which the customer's internal affective response and behaviour develop. It is a process involving both attention and comprehension: attention being how the cognitive system selects which stimuli to interpret, and comprehension is defined as the cognitive process by which the subjective meaning of information is transformed into a cognitive representations.

Other factors related to the interpretive process include the consumer's knowledge, meanings and beliefs. Knowledge, meaning, and belief are, according to Peter and Olson (1990, 52), often used almost interchangeably. They define beliefs as personal meanings produced by the comprehension process. It should be pointed out here that there is a crucial relationship between belief and long-term memory given that beliefs are actually stored in this type of memory. Some part of this stored knowledge may be retrieved when needed.

Integration, the second cognitive process, involves the combining and use of information by consumers. This process is made up of two parts: attitude, which might involve cognitive and affective responses, and intentions. Decisions about behaviour,

including purchasing decisions, are made through the integration process (Peter and Olson, 1990, 52). The choice of whether to bank online or to pay a visit to the local bank is an example of decisions that might be reached through the integration process. Other examples of such decisions include whether to recommend a certain product or service to others. A more detailed discussion of attitudes and intentions can be found later in this study.

Another aspect of the consumer decision making process widely discussed in the literature is that it involves making a choice between at least two alternative actions.

The chosen behaviour that is the result of this process is represented cognitively as a behavioural intention. A behavioural intention is, in general, a plan to carry out a specific behaviour. Researchers studying the consumer decision making process have identified five basic problem solving stages (Assael, 1981; Peter and Olson, 1990; Schermerhorn, 1993).

Most definitions of the concept of attention in the literature are quite close to most people common understanding of the word. For example, Engel et al. (1968) define attention as the process by which stimuli are received and translated into a response by the individual. Another definition is that it is the process by which an individual becomes aware of his environment and interprets it into a form that fits into his frame of reference (Walters, 1974). Other definitions include it being the momentary focusing of an individual's information processing capacity on a specific stimulus (Wilkie, 1994). All these definitions can help us grasp different sides of the meaning of attention. An understanding of the attention and comprehension processes is required for marketing specialists to design marketing and advertising campaigns so that the information would

be interpreted appropriately by consumers. Such knowledge is vital in the world of Internet banking.

Attitudes can be considered high-order constructs, with attitudes forming from beliefs. In some older studies, researchers suggest that a distinction should be made between the definitions of attitudes and beliefs (Krech and Crutchfield, 1948; Osgood and Tannenbaum, 1955; Katz and Stotland, 1959; Steiner and Fishbein, 1965).

Martin Fishbein, a well-known researcher in this field, notes that even though attitude researcher has been going on for many years, there is little or no “consistent evidence supporting the hypothesis that knowledge of an individual's attitude toward some object will allow one to predict the way he will behave with respect to that object” (Fishbein, 1967, p477).

To address this problem, Fishbein went on to develop a new model for predicting consumer attitudes toward an object. His model proposes that intentions are an intermediate variable between attitudes and behaviour. Fishbein does recognize, however, that attitudes can predict intentions only in the most general terms and that they are not very helpful in predicting specific intentions since they can be quite idiosyncratic.

The attitude-behaviour relationship is usually shown as a two-way street between two mutually influencing variables: while attitude influences behaviour, attitudes are themselves affected by past behaviour. Someone with a positive attitude towards

Internet banking is more likely to use the service than someone who does not have such an attitude.

Because attitudes create a context in which to interpret new information and help in organizing and selecting facts as well as in evaluating other people's opinions, attitudes are often seen as being determinants of meaning (Maier, 1965).

Attitudes play a pivotal role in the integration process of consumer decision making. Attitudes also include consumer evaluations of product or service ability to satisfy their needs. Because attitudes are learned and can be changed, they are the most frequently measured aspect of consumer behaviour. Marketing specialists are better able to understand their customers and, as a consequence, design more effective marketing mixes when they know consumer attitudes (Assael, 1981; Wilkie, 1994).

Several scholars have split attitude into three component parts: the (1) cognitive, (2) affective, and (3) conative components (Fishbein, 1965; Baron and Byrne, 1984; Spooncer, 1992). Attitude's cognitive component encompasses the individual's belief or knowledge about an object (that something is faster or more reliable than another object. Attitude's affective component refers to the individual's level of like or dislike towards something. This component is also often referred to as brand evaluation. An overall evaluation of a certain service or product can be measured through customer ratings (poor/excellent OR most preferred/least preferred). Attitude's conative component, also known as the behavioural component, point towards the individual's behavioural tendency or intention towards something (e.g. "I would like to subscribe to my bank's Internet banking service") and can be measured by that person's intention to buy or to otherwise behave positively. The literature on this subject often looks at attitude as a

multi-dimensional concept (Foxall, 1980, p67). The literature indicates that attitudes will eventually result in intentions and that, in general, these intentions, which are a function of certain beliefs, are linked to corresponding behaviour.

Some researchers have argued that some of the beliefs that deal with the behaviour in question influence the individual's attitude towards that behaviour (Fishbein and Ajzen, 1975). These researchers also believe that attitude towards a specific behaviour is linked to a person's beliefs about, and evaluation of, the consequences of that behaviour. This attitude towards a specific behaviour is seen as being a major determinant of an individual's intentions about that behaviour. Normative beliefs, i.e. beliefs about other people, can also influence an individual's behavioural intentions.

Fishbein, trying to address this problem, went on to create a model for predicting consumer attitudes in which he theorized that intentions are intermediate variable between attitudes and behaviour. This model does recognize that intentions can only be predicted in the most general terms from a person's attitudes since specific intentions, according to Fishbein, are idiosyncratic.

Among other definitions of attitude (Lutz, 1981) is that it represents covert favourable or unfavourable feelings about a behaviour, object, person, or issue. Yet another definition of attitudes is that they are relatively long lasting clusters of beliefs, feelings and behavioural tendencies towards certain objects, ideas, persons or groups (Baron and Byrne, 1984).

Even so, not all academics support this multi-dimensional approach (Foxall, 1980). According to critics, the various attitude dimensions may not always be correlated.

Another concern is that by focussing on measuring affective and cognitive elements, we may sometimes ignore actual consumer behaviour in the marketplace.

A review of the literature reveals an ongoing discussion on the importance of distinguishing between two elements of attitude towards an object. The first attitude type is the extrovert, and this defines consumers that are social and spontaneous in their reactions to most situations, and they are less given to reflection and consideration. The second attitude type is the introvert, a type defined by people who have a tendency to be withdrawn, are more likely to react slowly to events and demands from others, and tend to require more time to select, integrate and become aware of outside impressions (Fordham, 1959; Jung 1964).

The literature indicates that attitudes will eventually result in intentions and that, in general, these intentions, which are a function of certain beliefs, are linked to corresponding behaviour.

Fishbein and Ajzen (1975) have defined a person's behavioural intentions as the strength of the intent to perform a specified behaviour. They also consider behavioural intentions to include the individual's goals, aspirations, and expected responses to the target object.

5.4.6 Actual Use

Answering the question of how attitudes towards electronic banking are formed and how these attitudes relate to Internet banking usage involves a typical causal research, identifying causal relationships between various factors and variables like attitude and Internet banking usage.

In all probability, the most commonly used strategy for modifying consumer attitude is the adding of new relevant beliefs to those that already exist (Lutz, 1975; Mitchell, 1985). This often involves making a change in the actual product or service. In the banking sector, we can find an example of this in the creation of new electronic distribution channels, thereby adding new salient beliefs to those already held by consumers. The next most common attitude change strategy involves changing the strength of one or more current salient beliefs. In practice, this means that marketers try to increase consumers' strength of beliefs involving the positive aspects of products and services while reducing the strength of beliefs involving the negative aspects of products and services. In the case of electronic banking, marketing specialists try to create the perception that this is a fast and convenient means of delivering various banking services. A third strategy for attitude change in common use today is improving positive consumer evaluation of beliefs that already exist. In essence, a person's evaluation of certain attributes reveals that person's attitude toward those attributes. Kellogg's, for example, tried to improve consumer attitudes towards Kellogg's products that contain fibre by linking the food attribute "fibre" to cancer prevention (Peter and Olson, 1990).

Marketers need a deeper understanding of how actual consumer behaviour in the marketplace can be predicted from attitudes and the extent to which those predictions are accurate and effective. Usually, an individual's attitudes towards a specified person, place, product or idea has some relation to behaviours towards these things, although some suggest that attitudes can sometimes be irrelevant to the actual behaviour or can be linked to more than one specific behaviour. Even though most customers may have overall positive attitudes about a certain product, many of those customers may decide not to buy that product for one reason or another. We can therefore say that a certain attitude can manifest in many possible behaviours, making it much more difficult to predict a specific outcome. Ajzen and Fishbein (1980) have developed a model (TRA) identifying specific attitudinal factors and their effects on selected behaviours as a means of overcoming this limitation.

The TRA, according to Runyon and Stewart (1987), is an effort towards integrating attitude theory, studies of group influence on decisions, and research on consumer reference groups. The TRA acknowledges the complexity of consumer behaviour and, rather than isolating one behavioural predictor, tries to take into account all factors influencing consumer behaviour. These factors include the effect of 'significant others', people with influence on the consumer. Given that positive attitude may be an insufficient cause for a purchase, other factors may have to be dealt with. The TRA is especially useful in considering the various factors influencing consumer behaviour (Runyon and Stewart, 1987).

CHAPTER 6. PILOT STUDY : SURVEY QUESTIONNAIRE

6.1 Introduction

To ensure a comprehensive analysis for a range of perspectives, a mixed methods research approach (Drawn from qualitative and quantitative methods) was used to gather the data. Descriptive statistics were used for the quantitative analysis to determine summative results. Qualitative data was obtained through interview questions. Both the quantitative and qualitative research was used to gain an understanding of the Internet banking adoption and use by individuals and organizations in Jordan. A concurrent triangulation research approach was utilized to confirm and corroborate findings within the single study, the literature review, the unstructured interview and the survey questionnaire (Creswell, 2003).

In the first step, the literature reviews and the unstructured interviews are used as exploratory devices to help identify variables and relations (Kerlinger, 1986). In addition, this gives more understanding for the research questions, the problems and environments of the research.

In the second step, the results from the unstructured interviews are used to build some of the survey questions in terms of the demographic variables. A pilot study is an experimental study used to prove a particular instrument of investigation; also called, 'pre-testing' or 'trying-out' (Zikmund, 2003; Baker, 1994).

The unstructured interview was conducted in Jordan with the bank managers, while the survey questionnaire for the pilot study was conducted in Australia with Jordanians who are living in Australia and who have spent less than one year there. Therefore, they still have the same cultural Jordanian attitudes.

6.2. Survey Questionnaire

A pilot study is recognized as a part of the scale development methodology. It is an experimental study used to prove a particular instrument of investigation and is also called 'pre-testing' or 'trying-out' (Zikmund, 2003; Baker, 1994). One of the advantages of the pilot study is that it gives a preliminary warning about any areas in which the main research could possibly fail, where the possibility of research protocol may not be followed, or where suggested methods or instruments are inappropriate or complicated (Teijlingen and Hundley, 2001). The reasons for conducting a pilot study (Teijlingen and Hundley) are listed as follows:

- Developing and testing adequacy of research instruments
- Assessing the feasibility of a (full-scale) study/survey
- Designing a research protocol
- Assessing whether the research protocol is realistic and workable
- Establishing whether the sampling frame and technique are effective
- Assessing the likely success of proposed recruitment approaches
- Identifying logistical problems which might occur during the data collection stage
- Estimating variability in outcomes to help determine sample size
- Collecting preliminary data

- Assessing the proposed data analysis techniques to uncover potential problems
- Developing a research question and research plan
- Training a researcher in as many elements of the research process as possible

Accordingly, a pilot study would be useful for this research in terms of increasing the accuracy of the results through achieving the above points. The test instrument would be developed and administered to a convenient sample of Jordanian students.

Calder, Phillips and Tybout (1981) suggest a convenient sample for theory testing, as it removes some of the extraneous variables that might affect the variable of interest in theory testing. Moreover, convenience sampling is considered more appropriate when addressing hypotheses such as those related to theory testing (Calder, Phillips and Tybout, 1981). Because a pilot study tests an initial theoretical model, the focus is not on generalisation, but whether or not the sample is representative for testing the model (Morgan and Hunt, 1994).

Hunt, Sparkman and Wilcox (1982) recommend a sample size between 12 and 30 for a pilot study, while Spector (1992) simply recommends a small sample. Due to time and budget restrictions, a sample of 75 people was randomly chosen from the Jordanian student in Wollongong and Sydney. The returned responses were 56 questionnaires; four of them were exempted from the analysis, because there were many questions left unanswered. Therefore, 52 questionnaires were used in the analysis.

6.3. Data Collection and Results of Survey Questionnaire

6.3.1 Questionnaire Design

In the second stage of the extensive study of Internet Banking in Jordan, a survey questionnaire, and an exploratory survey was conducted in order to examine the factors that influence the adoption of Internet banking in Jordan.

A ten-page questionnaire was designed for the pilot. Each question represented a component of the research model. The questions were selected for their theoretical importance and potential relevance to practice. On several occasions, a statistical consultation was made with the Statistical Consultation Service in the University of Wollongong to verify the Statistical validity of the research model, hypotheses and questionnaire. After its verification the questionnaire was pre-tested on five Jordanian banks managers, two Jordanian academics and ten Jordanian students in Australia. Based on the feedback received from the representatives, some modifications were made to the individuals' questions and instructions.

The revised questionnaire was then subjected to the next phase of pre-testing with academics and four doctoral students drawn from the Faculty of Commerce at the University of Wollongong, where the research was taken place. All of their comments and suggestions regarding the clarity, validity and consistency of the questions were incorporated into the survey instrument.

A cover letter explaining the purpose of the survey has been designed. The cover letter has a statement guaranteeing the confidentiality of the respondents and a statement of

how the research has been reviewed by the Human Research Ethics Committee (HREC), as is required in Australia.

The majority of the Jordanian individuals converse in Arabic; therefore, the pilot study as well as the main study would be in the Arabic language. The pre-test questionnaire was sent to three bilingual Jordanians (English/Arabic) people to ensure that the two versions of the questionnaire matched as close as possible. The English version was translated into Jordanian by a bilingual Jordanian, and then translated back to English by another bilingual Jordanian working independently. The questionnaires in both language versions were compared in order to resolve any differences. The final versions were then used for the pilot.

Although there is no widely agreed upon sample size for the pilot survey, Hunt et al., (1982) recommend a sample size between 12 and 30 for the pilot study, while Spector (1992) simply recommends a small sample. The pilot survey was carried out on a representative sample of 75 persons randomly chosen from Jordanians who have been living in Australia (Wollongong and Sydney) for less than one year as they are still influenced by Jordanian culture. There were 56 returned, a response rate of 74.7%. Four surveys were exempted from the analysis since they were not complete. Therefore, (n = 52) of which were usable. There were some suggestions and comments from respondents that were noted to improve the questions for the main study.

6.3.2 Descriptive Statistics

The descriptive statistics for the pilot test is displayed in Table 6.1. 43 (82.7%) of the respondents were male and 9 (17.3%) were female. The percentage of males who participated in the survey was higher than the percentage of females with most having considerable experience in using a computer (32 for more than 5 years) and using the Internet (21 for more than 5 years). The majority of respondents spoke English as well as Arabic and were well educated: 27 have a master degree, 19 a bachelor degree, 5 a college degree and only one person with a graduate diploma.

Appendix VI shows the Frequency report for the set of variables in the study. In addition, it shows the skewness and kurtosis of the respondents for each scale in the survey instrument.

Table 6.1 Demographic Data of Pilot Study

Variable	Valid	Frequency	Percent %
Gender	Male	43	82.7
	Female	9	17.3
Age	18-22	2	3.8
	23-27	24	46.2
	28-32	17	32.7
	33-37	4	7.7
	38-42	3	5.8
	43-47	1	1.9
	>52	1	1.9
Education Level	College degree	5	9.6
	Bachelor degree	19	36.5
	Graduate diploma	1	1.9
	Master degree	27	51.9
Income	<200	3	5.8
	201-300	9	17.3
	301-400	19	36.5
	401-500	5	9.6
	501-600	10	19.2
	>600	6	11.5
Job	Public employees	10	19.2
	Private employees	10	19.2
	Student University	26	50.0
	Businessman	3	5.8
	Others	3	5.8
Total		52	100.0%

6.3.3 Instrument Items

Table 6.2 shows the scales in the draft instrument. There were a total of 93 items in the questionnaire. Culture has five dimensions and 40 items. Trust includes two dimensions and 14 items. Technology quality has four dimensions and 11 items, Perceived Usefulness with 10 items; Perceived Ease of Use with 10 items; Attitude Toward Using with 5 items; and Behavioural Intention to Use with 3 items. Each of these scales was examined in the pilot test.

Table 6.2 Construct Items of Culture Variables

Dimension	Code	Statement
Uncertainty Avoidance (UA)	UA 1	It is important to have job requirements and instructions spelled out in detail so that people always know what they are expected to do.
	UA 2	Rules and regulations are important because they inform workers what the organization expects of them.
	UA 3	People should avoid making changes when their outcomes are uncertain.
	UA 4	Order and structure are very important in a work environment.
	UA 5	If I had to choose I would prefer a less than ideal alternative that I was familiar with over an alternative with an uncertain outcome.
	UA 6	It is better to work in an organization with specific rules and regulations as opposed to a more flexible organization.
	UA 7	I would prefer a bad situation that I know about to an uncertain situation which might be better.
	UA 8	Providing opportunities to be innovative is more important than requiring standardized work procedures.
	UA 9	It is important that people take initiative in their work rather than always following step-by-step instructions.
	UA 10	Working in a structured environment is better than working (rules and regulations) in an unstructured work environment.
Power Distance (PD)	PD1	Managers should be careful not to ask the opinions of subordinates too frequently, otherwise the manager might appear to be weak and incompetent.
	PD2	Managers should make most decisions without consulting subordinates.
	PD3	Employees should not question their manager's decisions.
	PD4	Employees should always respect the chain of command and never go over their manager's head.
	PD5	Manager should not ask subordinates for advice, because they might appear less powerful.
	PD6	In general, the manager, not the employees should have the last word.
	PD7	Higher level employees should have more power than lower level employees.
	PD8	I believe that there should be status inequality among employees in an organization.
	PD9	Decision making power should stay with top management in the organization and not be delegated to lower level employees.
	PD10	A manager should perform work that is difficult and important, and delegate tasks which are repetitive and mundane to subordinates.
	PD11	Higher level managers should receive more privileges than lower level employees.

Continued Table 6.2 Construct Items of Culture Variables

Masculinity/ Femininity (MF)	MF1	It is more important for men to have a professional career than it is for women to have a professional career.
	MF2	Women do not value recognition and promotion in their work as much as men do.
	MF3	It is preferable to have a man in high level position rather than a woman.
	MF4	There are some jobs in which a man can always do better than a woman.
	MF5	Men usually solve problems with logical analysis; women usually solve problems with intuition.
	MF6	Solving organizational problems usually requires an active forcible approach that is more typical of men.
Individualis m /Collectivism (IC)	IC1	Individual rewards are not as important as group welfare.
	IC2	Group success is more important than individual success.
	IC3	Group welfare is more important than individual rewards.
	IC4	Being accepted as a member of a group is more important than having autonomy and independence on the job.
	IC5	It is more important for a manager to encourage loyalty and a sense of duty in subordinates than it is to encourage individual initiative.
	IC6	Being accepted as a member of a group is more important than being independent.
	IC7	I value my independence more than being accepted by others.
	IC8	Being loyal to a group is more important than individual gain.
Long vs. Short-Term Time Orientation (LST)	LST1	It is important to have a conscience in business.
	LST2	Personal stability is not critical to success in business.
	LST3	Respect for tradition hampers performance.
	LST4	The exchange of favors and gifts is not necessary to excel.
	LST5	Upholding one's personal image makes little difference in goal achievement.

Continued Table 6.2 Construct Items of Trust Variables

Dimension	Code	Statement
Trust in the bank (TB)	TB 1	The performance of online transactions makes me confident in my bank.
	TB 2	My bank is honest with me.
	TB 3	My bank has a good reputation.
	TB 4	I feel loyal towards my bank.
	TB 5	I am happy with the efforts my bank is making towards a regular customer like me.
	TB 6	I am satisfied with the relationship I have with my bank.
	TB 7	My bank is one that keeps promises and commitments.
	TB 8	Overall I trust my bank.
Trust in the electronic channel (TE)	TE1	I expected that using the Internet to access my bank will perform as well as other technologies such as telephone banking or TV banking.
	TE2	I expected that using the Internet to access my bank will be available for use without interruption of service.
	TE3	I was very confident that using the Internet to access my bank would perform as reliably as I expected it to perform.
	TE4	I thought that using the Internet to access my bank has the capability to provide a desired level of service in adverse or hostile conditions (e.g., natural disasters).
	TE5	I believed that using the Internet to access my bank will resist attacks that can compromise the bank's data and services.
	TE6	I trust the Internet to do transaction such as (money transferring).

Continued Table 6.2 Construct Items of Technology Quality Variables

Dimension	Code	Statement
Convenience /Accuracy (CA)	CA1	Internet guarantees that all transactions to my bank have taken place.
	CA2	Internet is able to conduct my transactions to my bank accurately.
	CA3	Internet is able to allow access to my bank with convenient hours of operation (7 days, 24 hours).
Feedback/ Complaint management (FC)	FC1	Internet enables me to Feedback my complaints about my bank immediately or within 24 hours.
	FC2	Internet will help me to get any questions about my bank answered.
	FC3	Internet will let me have a professional appearance.
Efficiency (EF)	EF1	Using the Internet to do transactions is efficient/no wait time.
	EF2	Internet will connect customer with the bank immediately.
	EF3	Internet can help to include all banks needs in menu options.
Security/ Privacy (SP)	SP1	Using internet to do money transaction is secure.
	SP2	Using internet to do money transaction will not disclose my private information.

Continued table 6.2 Construct Items of Internal Variables TAM

Construct	Code	Statement
Perceived Usefulness (PU)	PU1	Using the Internet gives me greater control over my work.
	PU2	Using the Internet improves my job performance.
	PU3	Internet enables me to accomplish tasks more quickly.
	PU4	Internet supports critical aspects of my job.
	PU5	Using the Internet allows me to accomplish more work than would otherwise be possible.
	PU6	Using the Internet enhances my effectiveness on the job.
	PU7	Using the Internet improves the quality of the work I do.
	PU8	Using the Internet increases my productivity.
	PU9	Using the Internet makes it easier to do my job.
	PU 10	Overall, I find the Internet useful in my job.
Perceived Ease of Use (PEOU)	PEOU1	Learning to operate the Internet is easy for me.
	PEOU2	Interacting with Internet is often frustrating.
	PEOU3	Interacting with the Internet requires a lot of my mental effort.
	PEOU4	I find it takes a lot of effort to become skilful at using the Internet.
	PEOU5	The Internet is rigid and inflexible to interact with.
	PEOU6	I find it easy to get the Internet to do what I want it to do.
	PEOU7	I find the Internet cumbersome to use.
	PEOU8	My interaction with the Internet is clear and understandable.
	PEOU9	It is easy for me to remember how to perform tasks using the Internet.
	PEOU10	Overall, I find the Internet easy to use.
Attitude Toward Using (ATU)	ATU1	Using the Internet is a good idea.
	ATU2	I like the idea of using the Internet.
	ATU3	Using the Internet would be pleasant.
	ATU4	I dislike the idea of using the Internet.
	ATU5	Using the Internet would be unpleasant.
Behavioural Intention to Use (BI)	BI1	I intend to use the Internet to do that frequently.
	BI2	I predict that I should use the Internet to do that in the future.
	BI3	It is likely that I will transact with the Internet to do that in the future.
Actual Use (AU)	AU1	I am using internet banking
	AU2	I am not using internet banking

Continued Table 6.2 Item Scale and Development Adaptation

THE ITEMS	REFERENCES
Culture	Hofstede, G. 1980,1991; Srite, Mark David 2000; McCoy, Scott 2002.
Trust	Yang, Zhilin 2001; Kyu Kim, Bipin Prabhakar 2000, Paul A. Pavlou 2003.
Technology Quality	Minjoon Jun et. al. 2001,2002; Minjoon Jun, Shaohan Cai 2001; Zhilin Yang, Robin T. Peterson 2001;Cathy S. Lin , Sheng Wu 2002.
Perceived Usefulness	Davis 1989,1993; Davis et. al. 1989.
Perceived Ease of Use	Davis 1989,1993; Davis et. al. 1989.
Attitude Toward Using	Yogesh M., Dennis F. 1999; Taylor and Todd, 1995.
Behavioural Intention to Use	Yogesh M., Dennis F.1999; Michael G. Morris and Andrew Dillon 1997;Paul A. Pavlou 2003.
Actual Use	Davis 1989,1993; Davis et. al. 1989.

The full questionnaire has been sent to a panel of experts. In this questionnaire, the respondents were asked if they have Internet access and have a bank account mark yes or no. If they answer yes, they have to go to the following questions to answer them and if they answer no, they need not continue. Some of the panel experts suggested not to ask in this way, because some of the participants may get confused, or just may say no in order not to continue the questionnaire. They suggested to ask them to tick only if they have internet access and have a bank account and to continue the following questions after the data collection. Those who do not have an Internet access or bank account will be excluded from the survey.

6.3.4 The Design of the Survey Questionnaire and Scale Items

Deciding the items to measure each concept in the questionnaire is only a part of the questionnaire development process. The researcher must also decide on the appropriate way that respondents give the required information to the researcher, so that meaningful inferences can be made from the data (Wren, 1997). Interval scaling in the form of a numerical scale was selected as the most appropriate to measure most external variables (culture, trust and technology quality) and all the TAM variables (PU, PEOU, ATU and BI). It has the capability to provide the highest level of measurement precision (Hair, et al., 1995) is considered very suitable to test the hypothesis (DeVellies, 1991), as used in this research.

The interval scale is probably the most widely used in research (Bagozzi and Heatherton, 1994). In this scale, numbers are assigned to indicate order and also measure distance in units of equal intervals (Zikmund, 2003). The Likert scale has been accepted by some social scientists (Kervin, 1992). The most common and easily used intensity (or scaled) question involves the use of the Likert answer scale. It allows the respondent to choose one of five degrees of feeling about a statement, from strong approval to strong disapproval.

Bank customers will choose from a five point numerical scale as shown in Table 6.3. five point numerical scale was used for the collection of most of the data for two reasons. Firstly, it is widely used by researchers (Morgan and Hunt, 1994) and it provides a level of intensity and feeling to be expressed. It allows for a direct measure of respondent opinions (Luck and Rubin, 1987). Finally, it makes the responses easy to manage a code and appropriate to different statistical techniques (Luck and Rubin,

1987). In brief, care was taken in constructing measurement and scaling procedures for the questionnaire design process in this research.

Table 6.3. Five Point Numerical Scale

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Items	1	2	3	4	5

For ease in interpreting the results of the questionnaire, the weighting scheme should remain consistent throughout the survey.

A five point Likert scale was used throughout the questionnaire for statement the required scaling in order to keep the respondent's mind more focused on the statement. The codes for strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5) were used throughout the questionnaire where statement required respondents to choose of the options, instead of any other code or symbol as a bot. this was done so as to make it easier and faster for the response they were cinching without having to look back continually to circle the number that corresponds to answer what the codes stand for (Babbie, 2001; Wiersma, 1986).

The section requiring personal information from the respondent was placed at the end of the questionnaire. This was done to assist the respondent to move straight to responding to questions related to the main purpose of the survey after reading the cover letter (Babbie, 2001; Dillman, 2000; Wiersma, 2000) on the very last page of the questionnaire the respondent was thanked for their valuable contribution mad and ask to make any further comments they wish to contribute.

6.3.5 Reliability Analysis

A reliability test was used to examine the consistency with which individuals respond to the test in diverse occasions. If such individuals respond to the item in the same way in diverse occasions, such a instrument was considered a stable and exact measurement of the information of the interest. To test the reliability, Cronbach alpha was calculated for each scale, in order to confirm its value. Based on the recommendation of (Nunnally, 1978) it must be greater than 0.7. The Cronbach alpha can be increased in either the average correlation or the number of items (Zander and Kogout, 1995). Henryson (1971) notes that an 'item-to-total-test correlation should fall between 0.3 to 0.7 for inclusion' in a survey test.

Cronbach Alpha was used to measure internal consistency for survey and research variables based on a sample estimation. Although researchers suggest 0.7 as the accepted cut-off (Hair *et al*, 1995), a value more than 0.6 is regarded as a satisfactory level (Dinev and Hart, 2002; Hair, et al., 2000; Malhotra, et al., 1996; Van de Ven and Ferry, 1980; Nunnally, 1978).

In terms of culture, the study conducted reliability tests for five dimensions: uncertainty avoidance (UA), power distance (PD), masculinity/femininity (MF), individualism/coll-ectivism (IC) and long vs. short term time orientation (LST).

The first test was done using all UA items and the Cronbach alpha was found be 0.6920. Then reliability test was done by eliminating UA9 (0.7359) to increase the value of alpha as will as deleting UA8 (0.1554), because the item-to-total-test correlation value was less than 30% (Henryson, 1971). Therefore, the new value of alpha is (0.7581). The

first reliability test was done using all PD items and the Cronbach alpha was found (0.7311), then the reliability test was done by eliminating PD10 (0.7682) to increase the value of alpha. Also, PD4 (0.1703) and PD11 (0.1115) were deleted because the item-to-total-test correlation values for both were less than 30% (Henryson, 1971). Therefore, the new value of alpha is 0.8214. All MF items were included because the value of alpha is more than 70% (0.8046); also, all the item-to-total-test correlation values were more than 30%. The first reliability test was done according to using all IC items and the Cronbach alpha was found (0.6606), then the reliability test was done by eliminating IC7 (0.7451) to increase the value of alpha. IC5 (0.1365) was deleted because the item-to-total-test correlation value was less than 30%. Therefore, the new value of alpha is (0.7718). The first reliability test was done using all LST variables and the Cronbach alpha was found to be 0.4940, which is too low; then the reliability test was done again by eliminating LST2 (0.6277) to increase the value of alpha. LST1 (0.0173) was deleted because the item-to-total-test correlation value was less than 30%. Therefore, the alpha new value of is (0.7194).

In term of trusts, the study conducted reliability tests for two dimensions: trust in the bank (TB) and trust in the electronic channel (TE). All TB items were included because the value of alpha was more than 70% (0.8924), and item-to-total-test correlation values were more than 30%. The first test was done using all TE items, and the Cronbach alpha was found to be 0.7462. The reliability test was done by eliminating TE5 (0.1015); because the item-to-total-test correlation value was less than 30%. Therefore, the new value of alpha is 0.8197.

In terms of technology quality, the study conducted reliability tests for four dimensions: Convenience/Accuracy (CA), Feedback/Complaint management (FC), Efficiency (EF) and Security/Privacy (SP). All CA items were included because the value of alpha was more than 70% (0.7663) and all item-to-total-test correlation values were more than 30%. The first reliability test was done according to using all FC variables and the Cronbach alpha was found 0.6560. Then the reliability test was done again by eliminating FC3 (0.7409) to increase the value of alpha. Therefore, the new value of alpha is (0.7409), all EF items were included because the value of alpha is more than 70% (0.7353), and all item-to-total-test correlation values were more than 30%. All SP items were included because the value of alpha was more than 70% (0.9498), and all item-to-total-test correlation values were more than 30%

In terms of PU, the study conducted reliability tests for this variable. All PU items were included because the value of alpha was more than 70% (0.8576), and also all item-to-total-test correlation values were more than 30%. Further, the in terms of PEOU, the study conducted reliability test was done for PEOU as two steps (Davis, 1989): The first test was done on the positive statements for the PEOU (PEOU1, 6,8,9 AND 10) and the Cronbach alpha was found at 0.8236. Then the reliability test was done on the negative statements (PEOU2, 3,4,5 AND7) and it was found to be 0.3917. Therefore, the reliability for positive statements was greater than the reliability of negative statements; the positive statements were included in the main study. In terms of ATU, the first reliability test was done using all ATU items and the Cronbach alpha was found (0.7500), then again the reliability test was done by eliminating ATU5 (0.2931), because the item-to-total-test correlation value was less than 30%. Therefore, the new value of alpha was (0.7688) and all BI items were included because the value of alpha

was more than 70% (0.8255); and all item-to-total-test correlation values were more than 30%.

Then reliability analysis allows users to study the properties of measurement scales and the items that make them up. The reliability analysis procedure calculates a number of commonly used measures of scale reliability, and provides information about the relationships between individual items in the scale.

After deleting some items from the original scales, Cronbach's alphas were calculated in order to assess the internal consistency of the resulting scales. Although some researchers suggest 0.7 as the accepted cut-off (Hair et al., 1995), a value more than 0.6 is regarded as a satisfactory level (Dinev and Hart, 2002; Hair, Bush, and Ortinau, 2000; Malhotra et al., 1996; Van de Ven and Ferry, 1980; Nunnally, 1978). The following Table 6.4 shows the results from the reliability test. All of the scales had very high alpha scores, ranging from 0.7194 to 0.9498, and are all above the generally accepted lower limit of 0.7. From this finding it is concluded that the scales have high levels of internal consistency, and are considered to be suitably reliable, where (Cronbach) Alpha for survey and all research variables are greater than 60%, which was acceptable in the social science research. In the following table the various measures used are described. A five point likert scale is used throughout except otherwise slated. This was done to facilitate a good response rate (Wiersma, 2000).

Table 6.4 Reliability coefficients of scales (Cronbach Alpha) for scale variables used in this study (N=446, Scale = 5-point likert scale)

Variable		No. of Items Before Reliability	No. of Items After Reliability	Before Reliability	After Reliability
1. Culture	Uncertainty Avoidance (UA)	10	8	0.6920	0.7581
	Power Distance (PD)	11	8	0.7311	0.8214
	Masculinity/Femininity (MF)	6	6	0.8046	0.8046
	Individualism/Collectivism (IC)	8	6	0.6606	0.7718
	Long vs. Short-Term Time Orientation (LST)	5	3	0.4940	0.7194
2. Trust	Trust in the bank (TB)	8	8	0.8924	0.8924
	Trust in the electronic channel (TE)	6	5	0.7462	0.8197
3. Technology Quality	Convenience/Accuracy (CA)	3	3	0.7663	0.7663
	Feedback/Complaint management (FC)	3	2	0.7409	0.7409
	Efficiency (EF)	3	3	0.7353	0.7353
	Security/Privacy (SP)	2	3	0.9498	0.9498
4. Perceived Usefulness (PU)		10	10	0.8576	0.8576
5. Perceived Ease of Use (PEOU)		10	5	0.8236	0.8236
6. Attitude toward using (ATU)		5	4	0.7500	0.7688
7. Behavioural intention (BI)		3	3	0.8255	0.8255
Total		93	77		

6.3.6 Validity of the Scales

Factor analysis was conducted as a structure detection method for justified scales of culture, trust, quality, and TAM variables. In addition, factor analysis was conducted to explain how the three dimensions of culture, trust and quality relate to the constructs measuring them, and to establish the consistency of these items.

Factor loadings were investigated. Generally, factor loadings below 0.4 were considered low, and low-loading items should be suppressed (e.g., Chidambaram, 2003; Field, 2000; Garson, 2001; Eley and Stevenson, 1999; Hair et al., 1995; Stevens, 1992; De Vaus, 1991;). The result shows that the loading values of most of the items exceed the cut-off level. Table 6.5 to 6.11 shows the results of the factor loadings for each variable.

6.3.6.1 Culture-Validity

In terms of culture, the study conducted validity test for five dimensions: uncertainty avoidance (UA), power distance (PD), masculinity/femininity (MF), individualism/collectivism (IC) and long vs. short term time Orientation (LST).

As defined previously, Table (6.5) shows that the factor loadings of the five culture dimensions are valid; and that their loading factor on their dimensions are greater than 0.40, and all the items (AU5, 7; PD7, 8; MF1, 2,4; IC3, 4,6,7,8; AND; LST1, 2) that have factor loadings less than 0.4 are deleted.

Table 6.5 Factor Loading of Culture Dimensions

Item	Factors				
	1	2	3	4	5
UA1	0.024	0.776	0.054	0.161	0.176
UA2	0.207	0.760	0.088	0.022	0.073
UA3	0.021	0.428	-0.350	0.076	0.586
UA4	0.023	0.772	0.093	-0.114	0.044
UA6	0.369	0.466	-0.228	0.114	0.247
UA10	0.230	0.442	0.257	0.040	-0.122
PD1	0.647	0.212	0.210	0.178	0.013
PD2	0.834	0.200	-0.183	0.057	-0.107
PD3	0.782	0.270	-0.192	0.069	-0.280
PD5	0.706	0.073	0.199	0.356	-0.250
PD6	0.669	-0.180	0.082	0.035	0.446
PD9	0.647	0.052	0.093	-0.190	0.253
MF3	0.135	0.098	0.681	-0.307	0.093
MF5	0.066	0.244	0.778	-0.103	0.126
MF6	0.087	0.173	0.807	-0.109	0.010
IC1	0.024	0.152	0.182	0.066	0.794
IC2	-0.255	-0.168	0.403	0.185	0.561
LST3	0.035	-0.103	0.014	0.806	0.068
LST4	0.053	-0.122	-0.177	0.776	0.081
LST5	0.169	0.071	-0.285	0.731	0.028

6.3.6.2 Trust -Validity

In terms of trust, the study conducted validity tests for two dimensions: trust in the bank (TB) and trust in the electronic channel (TE).

As previously defined, Table (6.6) shows the factor loading of tow trust dimensions are valid and their loading factor on their dimensions are greater than 0.40. All the items (TB1; TE 4) that have factor loadings less than 0.4 are deleted.

Table 6.6 Factor Loading of Trust Dimensions

Item	Factors	
	1	2
TB2	0.681	0.500
TB3	0.470	0.284
TB4	0.740	0.239
TB5	0.812	0.282
TB6	0.865	0.287
TB7	0.786	0.244
TB8	0.839	0.256
TE1	0.207	0.810
TE2	0.223	0.869
TE3	0.400	0.796
TE6	0.375	0.790

6.3.6.3 Technology Quality -Validity

In terms of technology quality, the study conducted validity tests for four dimensions: Convenience/Accuracy (CA), Feedback/Complaint management (FC), Efficiency (EF) and Security/Privacy (SP).

As defined previously, Table (6.7) shows that the factor loading of the four technology quality dimensions are valid and their loading factor on their dimensions are greater than 0.40. The item (EF3) that has factor loadings less than 0.4 so it is deleted.

Table 6.7 Factors Loading of Technology Quality Dimensions

Items	Factors			
	1	2	3	4
CA1	0.125	0.712	0.442	0.176
CA2	0.388	0.807	0.072	0.169
AC3	0.173	0.608	0.402	0.317
FC1	0.171	0.315	0.849	-0.127
FC2	-0.121	0.058	0.863	0.300
EF1	0.253	0.353	3.85	0.773
EF2	0.132	0.102	0.141	0.922
SP1	0.940	0.153	0.073	0.202
SP2	0.916	0.312	-2.02	0.146

6.3.6.4 Perceived Usefulness (PU) -Validity

As previously defined, Table (6.8) shows that the factor loading of perceived usefulness is valid, and their loading factor on their dimensions are greater than 0.40. (Also, See Appendix VII).

Table 6.8 Factors Loading of PU

Item	Factors
	1
PU1	0.736
PU2	0.785
PU3	0.727
PU4	0.643
PU5	0.619
PU6	0.687
PU7	0.766
PU8	0.612
PU9	0.663
PU10	0.409

6.3.6.5 Perceived Ease of Use (PEOU) -Validity

As previously defined, Table (6.9) shows that the factor loading of perceived ease of use (PEOU) which is valid, and that their loading factor on their dimensions are greater than 0.40. (Also, See Appendix VIII)

Table 6.9 Factors Loading PEOU

Item	Factors
	1
PEOU1	0.538
PEOU6	0.788
PEOU8	0.867
PEOU9	0.831
PEOU10	0.828

6.3.6.6 Attitude Toward Using (ATU) -Validity

As previously defined, Table (6.10) shows that the factor loading of attitude toward using (ATU) that is valid, and that their loading factor on their dimensions are greater than 0.40.

Table 6.10 Factors Loading of ATU

Item	Factors
	1
ATU	0.810
ATU	0.872
ATU	0.689
ATU	0.705

6.3.6.7 Behavioural Intention to Use (BI) -Validity

As previously defined, Table (6.11) shows that the factor loading of behavioural intention to use (BI) which is valid, and that their loading factor on their dimensions are greater than 0.40.

Table 6.11 Factors Loading of BI

Items	Factors
	1
BI1	0.858
BI2	0.875
BI3	0.871

At the end as shown in the following Table 6.12 the summary of the number of the items after reliability before validation and number of items after validation , which included in the survey instrument.

Table 6.12 Items Included in the Survey Instrument

Variable		No. of items after reliability before validation	No. of items after validation
1. Culture	Uncertainty Avoidance (UA)	8	6
	Power Distance (PD)	8	6
	Masculinity/Femininity (MF)	6	3
	Individualism/Collectivism (IC)	6	2
	Long vs. Short-Term Time Orientation (LST)	3	3
2. Trust	Trust in the bank (TB)	8	7
	Trust in the electronic channel (TE)	5	4
3. Technology Quality	Convenience/Accuracy (CA)	3	3
	Feedback/Complaint management (FC)	2	2
	Efficiency (EF)	3	2
	Security/Privacy (SP)	3	2
4. Perceived Usefulness (PU)		10	10
5. Perceived Ease of Use (PEOU)		5	5
6. Attitude toward using (ATU)		4	4
7. Behavioural intention (BI)		3	3
Total		77	62

6.3.7 The Final Instruments

On the basis of this pilot test analysis, it was decided to proceed with the experiment using the revised instruments to collect data.

1. Culture Dimensions (CD)

Table 6.13 shows the scales of the final instruments. There are a total of 40 items including five dimensions. Each of these scales was examined in the pilot test.

Table 6.13 Item Scale for Culture Dimensions

Construct	Code	Statement
Uncertainty Avoidance (UA)	UA1	It is important to have job requirements and instructions spelled out in detail so that people always know what they are expected to do.
	UA2	Rules and regulation are important because they inform workers what the organization expects of them.
	UA3	People should avoid making changes when their outcomes are uncertain.
	UA4	Order and structure are very important in a work environment.
	UA6	It is better to work in an organization with specific rules and regulations as opposed to a more flexible organization.
	UA10	Working in a structured environment is better than working (rules and regulations)in an unstructured work environment.
Power Distance (PD)	PD1	Managers should be careful not to ask the opinions of subordinates too frequently, otherwise the manager might appear to be weak and incompetent.
	PD2	Manager should make most decisions without consulting subordinates.
	PD3	Employees should not question their manager's decisions.
	PD5	Manager should not ask subordinates for advice, because they might appear less powerful.
	PD6	In general, the manager, not the employees should have the last word.
	PD9	Decision making power should stay with top management in the organization and not be delegated to lower level employees.
Masculinity/ Femininity (MF)	MF3	It is preferable to have a man in high level position rather than a woman.
	MF5	Men usually solve problems with logical analysis; women usually solve problems with intuition.
	MF6	Solving organizational problems usually requires an active forcible approach which is typical of men.
Individualism/ Collectivism (IC)	IC1	Individual rewards are not as important as group welfare.
	IC2	Group success is more important than individual success.
Long- VS. Short-Term Time Orientation (LST)	LST3	Respect for tradition hampers performance.
	LST4	The exchange of favors and gifts is not necessary to excel.
	LST5	Upholding one's personal image makes little difference in goal achievement.

2. Trust Dimensions (TD)

Table 6.14 shows the scales of the final instruments. There are a total of 14 scale items in the questionnaire, including two dimensions; each of these scales were examined in the pilot test.

Table 6.14 Item Scale for Trust Dimensions

Construct	Code	Statement
Trust in the bank (TB)	TB 1	The performance of online transactions makes me confident in my bank.
	TB 2	My bank is honest with me.
	TB 3	My bank has a good reputation.
	TB 4	I feel loyal towards my bank.
	TB 5	I am happy with the efforts my bank is making towards a regular customer like me.
	TB 6	I am satisfied with the relationship I have with my bank.
	TB 7	My bank is one that keeps promises and commitments.
	TB 8	Overall I trust my bank.
Trust in the electronic channel (TE)	TE1	I expected that using the Internet to access my bank will perform as well as other technologies such as telephone banking or TV banking.
	TE2	I expected that using the Internet to access my bank will be available for use without interruption of service.
	TE3	I was very confident that using the Internet to access my bank would perform as reliably as I expected it to perform.
	TE4	I thought that using the Internet to access my bank has the capability to provide a desired level of service in adverse or hostile conditions (e.g., natural disasters).
	TE6	I trust the Internet to do transaction such as (money transferring).

3. Technology Quality Dimensions (TQD)

Table 6.15 shows the scales of the final instruments. There are a total of 11 scale items in the questionnaire, including four dimensions. Each of these scales were examined in the pilot test.

Table 6.15 Item Scale for Technology Quality Dimensions

Construct	Code	Statement
Convenience/ Accuracy (CA)	CA1	The Internet guarantees that all transactions to my bank have taken place.
	CA2	The Internet is able to conduct my transactions to my bank accurately.
	CA3	The Internet is able to allow access to my bank with convenient hours of operation (7 days, 24 hours).
Feedback/ Complaint management (FC)	FC1	The Internet enables me to feedback my complaints about my bank immediately or within 24 hours.
	FC2	The Internet will help me to get any questions about my bank answered.
Efficiency (EF)	EF1	Using the Internet to do transactions is efficient, no wait times.
	EF2	The Internet connects customers with the bank immediately.
Security/ Privacy (SP)	SP1	Using the Internet to transact money is secure.
	SP2	Using the Internet to do money transactions does not disclose my private information.

4. Perceived Usefulness (PU)

Table 6.16 shows the scales of the final instruments. There are a total of 10 scale items in the questionnaire, including one dimension; each of these scales was examined in the pilot test.

Table 6.16 Item Scale For Perceived Usefulness

Construct	Code	Statement
Perceived Usefulness (PU)	PU1	Using the Internet gives me greater control over my work.
	PU2	Using the Internet improves my job performance.
	PU3	The Internet enables me to accomplish tasks more quickly.
	PU4	The Internet supports critical aspects of my job.
	PU5	Using the Internet allows me to accomplish more work than would otherwise be possible.
	PU6	Using the Internet enhances my effectiveness on the job.
	PU7	Using the Internet improves the quality of the work I do.
	PU8	Using the Internet increases my productivity.
	PU9	Using the Internet makes it easier to do my job.
	PU 10	Overall, I find the Internet useful at work.

5. Perceived Ease of Use (PEOU)

Table 6.17 shows the scales of the final instrument. There are a total of 10 scale items in the questionnaire, including one dimension; each of these scales was examined in the pilot test.

Table 6.17 Item Scale for Perceived Ease of Use

Construct	Code	Statement
Perceived Ease of Use (PEOU)	PEOU1	Learning to operate the Internet is easy for me.
	PEOU6	I find it easy to get the Internet to do what I want it to do.
	PEOU8	My interaction with the Internet is clear and understandable.
	PEOU9	It is easy for me to remember how to perform tasks using the Internet.
	PEOU10	Overall, I find the Internet easy to use.

6. Attitude Toward Using (ATU)

Table 6.18 shows the scales of the final instrument. There are a total of 5 scale items in the questionnaire, including one dimension; each of these scales was examined in the pilot test.

Table 6.18 Item Scale For Attitude Toward Using

Construct	Code	Statement
Attitude Toward Using (ATU)	ATU1	Using the Internet is a good idea.
	ATU2	I like the idea of using the Internet.
	ATU3	Using the Internet would be pleasant.
	ATU4	I dislike the idea of using the Internet.

7. Behavioural Intention to Use (BI)

Table (6.19) shows the scales of the final instrument. There are a total of 3 scale items in the questionnaire, including one dimension; each of these scales was examined in the pilot test.

Table 6.19 Item Scale For Behavioural Intention To Use

Construct	Code	Statement
Behavioural Intention to Use (BI)	BI1	I intend to use the Internet to do that frequently
	BI2	I predict that I should use the Internet to do that in the future
	BI3	It is likely that I will transact with the Internet to do that in the future

Despite the relatively small sample used at this stage in the empirical work, these results show promise in support of the research approach on two counts.

1. The capacity of the survey instrument to provide meaningful measures of the individual variable in the model, as shown in Table 6.19. The findings of high power distance and an attendance to a masculine, collective culture are consistent with those of other cultural studies (see Hofstede, 1980). A high level of trust in the electronic channel, but not in the bank would be expected, as

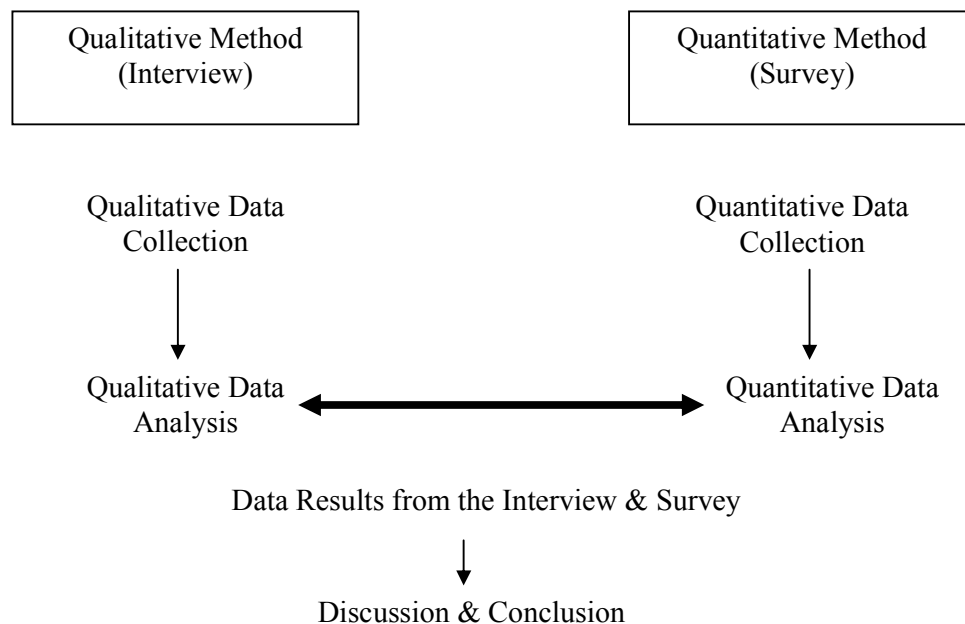
would the values on the perception of service quality with a low value on efficiency. There high is significant correlation between the variables of the traditional TAM model (PEOU and PU with ATU and BI).

2. That there is a significant correlation of most of the independent variables under the heading of Culture, Trust and Service Quality with PEOU and PU, indicates a modification of the TAM. It is interesting that the aggregation of all cultural variables had no significant correlation with any of the dependent variables. This indicates that culture is too complex to be treated as one homogenous concept, and that it must be broken into more focused.

CHAPTER 7. DATA ANALYSIS AND RESULTS: THE MAIN STUDY

This chapter presents the results of the data analysis for the main phase of this research. As described in Chapter 3, the data was collected and analysed by a mixed methods approach. Descriptive statistics were used for the quantitative analysis of the responses to the survey described in Chapter 6. Qualitative data was obtained through semi-structured interviews and processed by content analysis to produce concept maps. Both the quantitative and qualitative research was used to gain an understanding of the Internet banking adoption and use by individuals and organisations in Jordan. A concurrent triangulation research approach, as shown in Figure 7.1, was utilised to confirm and corroborate findings within a single study, a literature review, the interviews and the survey questionnaire (Creswell, 2003).

Figure 7.1 Overview of the Mixed Methods Research Design



7.1 Survey Results

7.1.1 Overview

The collected data was entered into SPSS software programs. The sample: 975 people were randomly chosen from a Jordanian community. These people worked in different organisations in different industries. All the participants were bank customers selected randomly from the Jordanian community: Jordanian universities, companies, Internet cafes, and businessmen from private or public sectors. The expected age(s) of adult participants was 18 years or older. Of the 663 respondents, 68% returned their questionnaires. 32% of the questionnaires (217) were exempted from the analysis, because either they didn't have Internet access and computer knowledge, or they didn't complete most sections in the questionnaire. Therefore, 67% of the questionnaires (446) from the returned respondents were used in the analysis. The results from the data collection show that there is an increase in the number of respondents who do not use Internet banking (84.5%), which is 377 respondents, while the percent of respondents who use the service was 15.5%, just 69 respondents. This shows the weakness in the adoption of Internet banking.

7.1.2 Reliability Analysis

As presented in the pilot study, the reliability analysis measures its stability over a variety of conditions (Nunnally and Bernstein, 1994). Reliability is concerned with the dependability, consistency, predictability and stability of measuring an instrument (Kerlineger, 1986). Cronbach Alpha was used to measure internal consistency for stat survey and research variables, based on the sample estimation. Although researchers suggest 0.7 as the accepted cut-off (Hair et al., 1995), a value more than 0.6 is regarded

as a satisfactory level (Dinev and Hart, 2002; Hair, et al., 2000; Malhotra, et al., 1996; Nunnally, 1978; Van de Ven and Ferry, 1980).

The results of the reliability test for the measures, as presented in Table 5.3 in the pilot study chapter, suggested that all the measures in this study were reliable. The Alpha coefficients for the measures ranged from 0.72 to 0.94. These results were expected, as all the constructs and variables used in the study were based on well-established instruments with high reliability scores from previous studies.

Table 7.1 shows that the results of the Cronbach Alpha test where for the main study survey and all the research variables was greater than 60%; this is acceptable in social science research.

Table 7.1 Alpha Cronbach Test Results of Main Study

Variable	No. of Items	No. of Cases	Alpha
Culture	20	446	60.1 %
Trust	13	446	89.1 %
Technology Quality	9	446	74.5 %
Perceived Usefulness	10	446	93.1 %
Perceived Ease of Use	5	446	89.8 %
Attitude Towards Use	3	446	88.2 %
Behavioural Intention	3	446	82.2 %
Total	63	446	89.8 %

7.1.3 Descriptive Statistics

Table 7.2 shows the results obtained from analysing demographic variables. The frequency and percentage for each variable is listed according to the survey categories. The following table describes these results.

Table 7.2 Analysing Demographic Variables Results

Variable	Valid	Frequency	Percent %
Sex	Male	332	74.4
	Female	114	25.6
Age	From 18-25 year	78	17.5
	From 26-35 year	202	45.3
	From 36-45 year	111	24.9
	From 46-55 year	38	8.5
	More than 55 year	17	3.8
Education Level	High school	25	5.6
	Diploma	87	19.5
	Bachelor	242	54.3
	Master	75	16.8
	Prof	17	3.8
Income	Less than 500 JD	284	63.7
	From 500-999 JD	100	22.4
	From 1000-1499 JD	37	8.3
	From 1500-1999 JD	13	2.9
	More than 2000 JD	12	2.7
Job	Private Employees	302	67.7
	Public Employees	144	32.3
Total		446	100

Gender (sex): 332 (74.4%) of the respondents were male and 114 (25.6 %) were female. The percentage of males who participated in the survey is higher than the percentage of females.

Age group: the results show that the percentage of age from 26-35 is the highest at 202 (45.3%), followed by both the 36-45 and 18-25 groups, which are equal to 24.9%. The age group from 18-25 years is 17.5 %; the age group from 46-55 years is 8.5%; those aged more than 55 years is 3.8%.

Education level: the survey shows that the highest number of respondents hold Bachelors degrees(242, 54.3%), which is approximately half of the sample. 20.6% have a higher level of education than a Bachelor’s degree, while 25.1% have a Diploma or lower.

Average monthly income: the data shows that the majority of respondents 63.7% are in the low income group (less than JD500), which is two thirds of the sample. The income group from 500-999 JD is 22.4%. The last category to have a higher JD than 1000 is 13.9%.

The sector (private or public): The majority of respondents are in the private sector with 67.6%; this is equal to two thirds of the sample. The percentage of respondents from the public sector is 32.3%.

Appendix VI shows the Frequency report for the set of variables in the study. In addition, it shows the skewness and kurtosis of the respondents for each scale in the survey instrument.

The appendix also indicates that the scales used and the research sample surveyed display normal distribution, since normality no longer has a severe effect on results (De Vaus, 2002), and the sample size is large enough (i.e., 100 or more) to assume reasonable normality in the scales (StatSoft, Inc 2003).

7.1.4 Sample Analysis

Table 7.3 shows the results of the sample analysis in terms of whether or not the respondents have an account, Internet access; whether their banks have a website or not, whether their banks offer Internet banking, whether they use Internet banking, and how long they have been using computers and the Internet.

Table 7.3 Analysing a Population's Sample Results

Question	Answer	Frequency	Percent
Please state whether or not you are a bank customer	Yes	446	100
	No	0	0
Do you have access to the Internet (from anywhere, anytime)?	Yes	446	100
	No	0	0
Does your bank have a website?	Yes	286	64.1
	No	8	1.8
	Don't Know	152	34.1
Does your bank offer an Internet Banking service?	Yes	166	37.2
	No	53	11.9
	Don't Know	227	50.9
Are you using an Internet Banking service?	Yes	69	15.5
	No	377	84.5
How long have you been using computers?	From 1-5 years	183	41.1
	From 6-10 years	198	44.4
	From 11-15 year	45	10.2
	From 16-20 year	16	3.5
	More than 20 year	4	0.8
How many years have you been using the Internet?	From 1-5 years	363	81.4
	From 6-10 years	83	18.6
Total		446	100

Q. Are you a bank customer or not?

The distribution of the sample population shows that the entire sample has a bank account (446, 100 %), which helps the purpose of the study.

Q. Do you have access to the Internet (from anywhere, anytime)?

The distribution of the sample population shows that all samples have the ability to obtain Internet service (446, 100 %), which helps the purpose of the study.

Q. Does your bank have a website?

The distribution of the sample population shows that while no answers are equal to 1.8%, most answers to this question are yes, with 64.1%, which is two thirds of the

population. The rest of the population have some doubt as to whether or not their bank has a website, with 34.1%.

Q. Does your bank offer an Internet Banking service?

The distribution of the sample population shows an increase in the number of respondents who don't know whether or not their bank provides Internet banking, with 50.9%; which is half the sample. The percentage of respondents who know their bank provides Internet banking is equal to 37.2%, while the percentage of respondents who don't know that their bank provides the service is 11.9%.

Q. Are you using an Internet Banking service?

The sample shows an increase in the number of respondents who don't use Internet banking, with 84.5%. The percentage of applicants who use the service is 15.5%.

Q. How long you have been using computers in general?

The distribution of the sample shows an increase in the number of respondents who have been computer users for the past ten years, with 85.5%, while the percentage of respondents who have been using them for the past fifteen years was 14.5%.

Q. How many years have you been using the Internet?

The sample shows an increase in the percentage of respondents who have been Internet users for the past five years, with 81.4%. The percentage of respondents who have been Internet users for more than five years is 18.6%.

7.1.5 Categorisation of Variables as applicable in Jordan

Table 7.4 shows the categorisation of the variables used in the research model.

Table 7.4 Results of the Respondent Categorization of the Main Study - High and Low

Variables	Low <3 %	Neutral =3 %	High >3 %	The Results
Culture				
▪ Uncertainty Avoidance (UA)	1.6	0.4	98.0	High
▪ Power Distance (PD)	76.9	8.7	14.4	Low
▪ Masculinity/Femininity (MF)	41.9	13.5	44.6	High
▪ Individualism/Collectivism (IC)	17.3	5.6	77.1	High
▪ Long Vs. Short-Term Time Orientation (LST)	39.4	17.3	43.3	High
Trust				
▪ Trust in the Bank (TB)	7.6	3.8	88.6	High
▪ Trust in the Electronic Channel (TE)	18.2	11.0	70.8	High
Technology Quality				
▪ Convenience/Accuracy (CA)	16.1	17.5	66.4	High
▪ Feedback/Complaint Management (FC)	9.9	13.4	76.7	High
▪ Efficiency (EF)	6.7	19.1	74.2	High
▪ Security/Privacy (SP)	33.6	36.7	29.6	Neutral
Perceived Usefulness (PU)	5.6	3.4	91.0	High
Perceived Ease of Use (PEOU)	5.0	2.4	92.6	High
Attitude Toward Using (ATU)	2.7	2.9	94.4	High
Behavioural Intention (BI)	8.3	8.1	83.6	High
Actual Use (AU)	84.5	-	15.5	Low

A survey of bank customers who are actual or potential Internet banking users: there is a confirmation of the TAM relationships between PU and PEOU, attitudes, intentions and usage. These are influenced by some cultural issues, trust in the bank's technology and some aspects of the quality of the technology and supporting banking service.

7.1.5.1 The External Variables in the TAM Model

7.1.5.1.1 Culture: Hofstede's Culture Dimensions

Table 7.4 shows a high level of uncertainty avoidance with 98.0%, a low level of power distance (76.9%), a high level of masculinity (44.6%), a high level of collectivism (77.1%), and a high level of long-term time orientation (43.3 %).

7.1.5.1.2 Individual Trust in Jordanian banks and the Electronic Service Channel

Table 7.4 shows a high level of trust in the bank with 88.6%, and a high level of trust in the electronic channel 70.8%.

7.1.5.1.3 Technology Quality in Jordanian banks

Table 7.4 shows a high percentage of convenience/accuracy with 66.4%, a high percentage of feedback/complaint management 76.7 %, a high percentage of efficiency 74.2 %; and a neutral percentage of security/privacy 36.7%. This means individuals may not have enough knowledge about this new service technology.

7.1.5.2 The Internal Variables in the TAM Model

Table 7.4 shows a high level of perceived usefulness with 91.0%, a high level of perceived ease of use with 92.6%, a high level of attitude toward using with 94.4 %, a high level of behavioural intention with 83.6%, and low level of actual use with 84.5%.

7.1.6 The Analysis Approach

This study involves three phases and three different statistical approaches to test the hypotheses. Multiple linear regressions were used to explain how the predictor variables combine to influence the dependent variable in the first two phases. But in the third

phase a simple linear regression was used. This was followed by the final phase where one-way ANOVA was utilised because AU was a category variable with two items.

To test the hypotheses associated with the predictors and dependent variable, the SPSS compute package was used to compute predictor variables entered/removed, model summary, analysis of variance (ANOVA), and residuals statistics tables. The ANOVA table tests whether multiple regressions (R) is significantly different from zero (F statistics). R in the model summary table is the correlations between the observed value of dependent variable and predicted values based on regression equation. R Square is the coefficient of multiple determinations. An adjusted R Square reflects the good of fit of the model to the population taking into account the sample size and the number of predictors used. Also, while the partial regression coefficients (r) in the coefficients table give the regression equation of the model, the standardised regression coefficients (beta) assess the relative importance of the predictors. The t value and Sig. t values in the Coefficient table show how the partial regression coefficient (slopes) differs significantly from zero. The residual table shows the difference between the actual value and predicted value of dependent value (Francis, 2004).

The general form of the multiple regressions equation for variables in this present study is as follows:

$$Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \dots + \beta_n \chi_n + \epsilon,$$

Where Y is the response variable; $\chi_1, \chi_2, \dots, \chi_n$ are the predictor variables; $\beta_0, \beta_1, \beta_2, \dots, \beta_n$ are the partial regression coefficients, net regression coefficients or just regression coefficients. Also, ϵ is the error, or residual assumed to be random and normally

distributed with equal variances at every χ point (Mason, et al., 1999). In the present research study, Y represents the perceived usefulness of Internet banking, perceived ease of use and attitudes towards using in their equations. Moreover, $\chi_1, \chi_2 \dots \chi_n$ are the predictors.

The analysis is conducted in three phases and three different statistics, as shown in Figure 7.2 and Table 7.5. In addition, to mutable regrating analysis the stepwise regression will be used to justify the best model.

Figure 7.2 Three Phases of Analysis

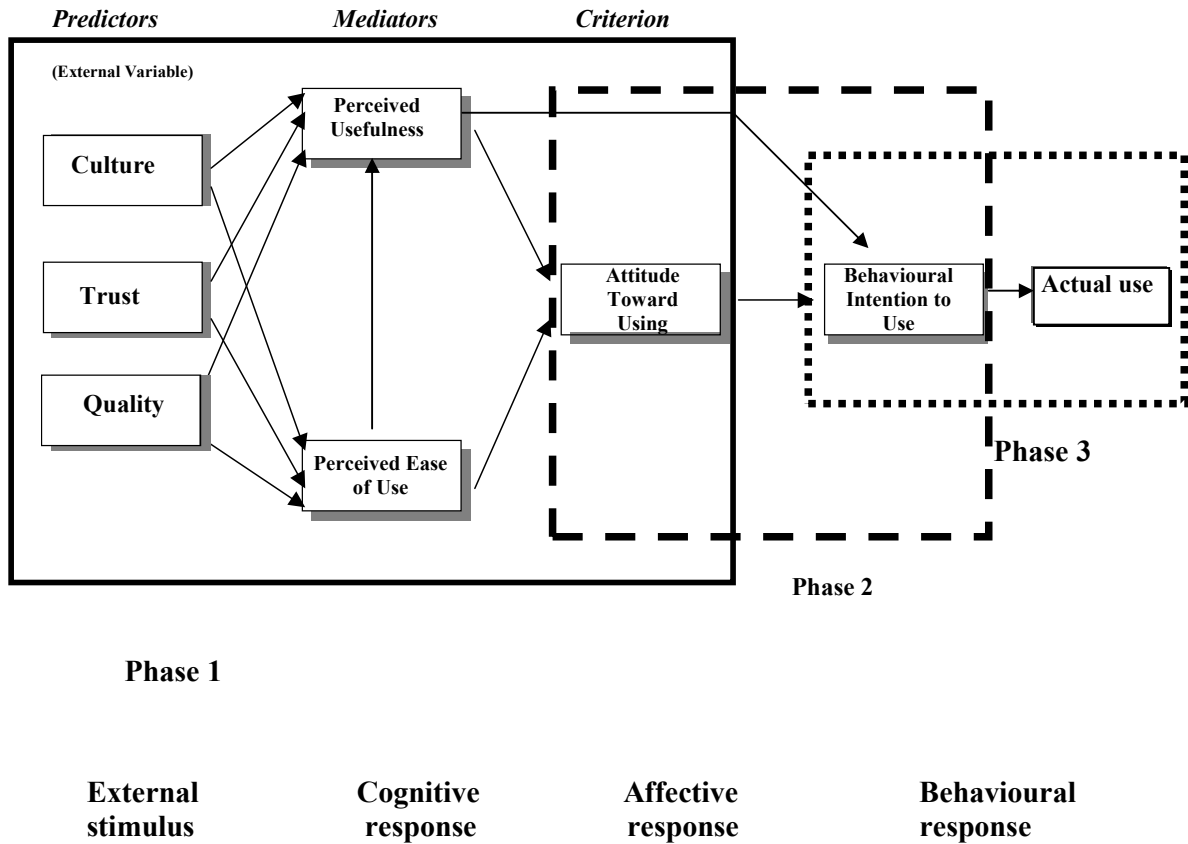


Table 7.5 All Types of Analyses Used in each Phase

Phase	Analysis Type	Hypotheses		Independent Variable	Dependent Variable
		Main	Sub		
1	Multiple Linear Regression	H1	H1 ₁	Culture <ul style="list-style-type: none"> ▪ Uncertainty Avoidance (UA) ▪ Power Distance (PD) ▪ Masculinity/Femininity (MF) ▪ Individualism/Collectivism (IC) ▪ Long vs. Short-Term Time Orientation (LST) 	Perceived Usefulness (PU)
			H1 ₂		
			H1 ₃		
			H1 ₄		
			H1 ₅		
		H2	H2 ₁	Culture <ul style="list-style-type: none"> ▪ Uncertainty Avoidance (UA) ▪ Power Distance (PD) ▪ Masculinity/Femininity (MF) ▪ Individualism/Collectivism (IC) ▪ Long vs. Short-Term Time Orientation (LST) 	Perceived Ease of Use (PEOU)
			H2 ₂		
H3	H3 ₁	Trust <ul style="list-style-type: none"> ▪ Trust in the bank (TB) ▪ Trust in the electronic channel (TE) 	Perceived Usefulness (PU)		
	H3 ₂				
H4	H4 ₁	Trust <ul style="list-style-type: none"> ▪ Trust in the bank (TB) ▪ Trust in the electronic channel (TE) 	Perceived Ease of Use (PEOU)		
	H4 ₂				
H5	H5 ₁	Technology Quality <ul style="list-style-type: none"> ▪ Convenience/Accuracy (CA) ▪ Feedback/Complaint management (FC) ▪ Efficiency (EF) ▪ Security/Privacy (SP) 	Perceived Usefulness (PU)		
	H5 ₂				
H6	H6 ₁	Technology Quality <ul style="list-style-type: none"> ▪ Convenience/Accuracy (CA) ▪ Feedback/Complaint management (FC) ▪ Efficiency (EF) ▪ Security/Privacy (SP) 	Perceived Ease of Use (PEOU)		
	H6 ₂				
H7	H7 ₁	Perceived Usefulness (PU) Perceived Ease of Use (PEOU)	Attitude Toward Using (ATU)		
	H7 ₂				
2	Simple Linear Regression	H8	-	Perceived Usefulness (PU)	Behavioural Intention (BI)
		H9	-	Attitude Toward Using (ATU)	Behavioural Intention (BI)
3	One-way ANOVA	H10	-	Behavioural Intention (BI)	Actual use (AU)

The theoretical basis of the Technology Acceptance Model (TAM) is found in Fishbein and Ajzen's (1975) Theory of Reasoned Action (TRA). In TRA, attitudes, which are influenced by beliefs, form behavioral intentions (BI), which then trigger actual behaviors. TAM uses this causal sequence of belief-attitude-intention behavior to understand the determinants of information technology (IT) acceptance/use. The original TAM proposed by Davis (1989) views a user's perception on usefulness (PU) and ease of use (PEOU) of a particular IT; these are the key factors influencing the

attitudes towards use (ATU) and the behavioural intention to use the system, which in turn influences the actual system use, in that causal sequence. This could summarise the individuals' acceptance or rejection of the new kind of service technology, based on such Internet applications as online banking.

Understanding why people adopt new IT has proven to be one of the most challenging issues in information systems research. The two particular user-related beliefs, perceived usefulness and perceived ease of use, are key determinants of attitude towards using a system. The actual system use can be predicted reasonably well from their behavioral intentions. The PU and PEOU are also major determinants of attitude towards using the system. In fact, there is empirical evidence that shows that attitude towards using mediates the effects of beliefs on behavioral intention. In other words, ATU influences BI to use the system, which in turn influences the actual system use, in that causal sequence (Venkatesh and Davis, 1996; Davis, et al., 1992; Davis, 1989, 1993; Ajzen and Fishbein, 1975, 1979; Triandis, 1979,1971).

The TAM model does not explicitly include the external variables as they are posited to affect acceptance behaviour through cognitive beliefs. The model also indicates that perceived ease of use directly influences perceived usefulness. Davis (1989, p. 320) defines perceived usefulness as, 'the degree to which a person believes that using particular system would enhance his or her job performance'. In addition, he defines perceived ease of use as, 'the degree to which a person believes that using a particular system would be free of effort'.

This research develops and tests a theoretical extension of the Technology Acceptance Model (TAM). TAM variables perceived usefulness and perceived ease of use, are posited as the two key drivers (cognitive beliefs) in accepting new technology. Both PU and PEOU have a significant influence on an individual's attitude towards using a technology, which has a subsequent impact on the behavioural intention to use the technology; due to external stimulus, such as social (culture and trust) influence and technology quality characteristics, and a bank's technology quality. The contribution of this study is to enhance the understanding of the diffusion and adoption of new information technology (Al-Sukkar and Hasan, 2005, 2004a,b).

In the first phase, multiple regression analysis is used to predict the relative contribution of culture to the outcome variables, perceived usefulness (PU) and perceived ease of use (PEOU). Moreover, the multiple regression analysis is used to predict the relative contribution of trust to the outcome variables, PU and PEOU. Furthermore, it is used to predict the relative contribution of technology quality to the outcome variables, PU and PEOU.

To sum up, the culture, trust and technology qualities as independent variables predict the relationships with dependent variables (PU and PEOU), on the basis of multiple regression analysis. Also, multiple regression analysis is used to predict the relationships between PU, PEOU and Attitude Toward Using (ATU). To summarise, the two independent variables, PU and PEOU predict the relationship with the dependent variable (ATU) using multiple regression analysis.

In the second phase, Simple Linear Regression Analysis is used to find the contribution of ATU to the outcome variable, Behavioural Intention (BI). In other words, the independent variable ATU predicts the relationship with the dependent variable BI. Also, Simple Linear Regression Analysis is used to find the contribution of PU to the outcome variable, Behavioural Intention (BI). In other words, the independent variable PU predicts the relationship with the dependent variable BI.

Finally, in the third phase, One-way Analysis of Variance (ANOVA) is used to find whether or not there is a significant difference in people Behavioural Intention (BI) during actual Internet banking use.

7.1.7 Testing the Theoretical Hypotheses

7.1.7.1 Testing the Underlying Assumptions for Multiple Regression Analysis

To draw a conclusion about a population based on a regression analysis conducted on sample data, Hair, et al. (1998) and Berry (1993) emphasize the importance of testing and identifying any violations of the underlying assumptions in multiple regression analysis.

The assumption of 'Linearity', 'Homoscedaticity', 'normality of residuals', 'multicol-linearity' and 'residual independence' in multiple regressions should be tested.

7.1.7.1.1 Linearity and Homoscedaticity

Linearity assumes that the relationship between dependent and independent variables should be linear (StatSoft, 2003; Berry and Feldman, 1985; Pedhazur, 1997), whereas Homoscedaticity means that the residual at each level of the independent variables should have the same variance (De Vaus, 2002). The main way of checking for the presence of Homoscedaticity is to examine residual plots of the actual standardised values (ZRESID) of the dependent against the predicated residual values (ZPRED) of the dependent variable (De Vaus, 2002).

7.1.7.1.2 Normality

Normality means multivariate normality, which assumes that ‘the joint effect of two variables is normally distributed’ (Hair, *et al.*, 1995, p. 276). As there is no direct test for assessing multivariate normality (Hair, *et al.*, 1995), histograms and normal probability plots of regression-standardised residuals were examined. Normality no longer has a severe effect on results (De Vaus, 2002), and the sample size was large enough (i.e., 100 or more) to assume reasonable normality in the scales (StatSoft Inc, 2003). The 975 people sample was randomly chosen from a Jordanian community.

7.1.7.1.3 Multicollinearity

Multicollinearity is defined as a strong correlation among predictor variables (Hair et al, 1998). The presence of Multicollinearity threatens the internal validity of multiple regression analysis and increases the likelihood of type II errors in hypothesis testing (Field, 2000). The diagnostics of Multicollinearity within multiple regression procedures can be guided through two statistic indications: the variable inflation factor (VIF), and tolerance measures (De Vaus, 2002). The tolerance value was acceptable

over 0.1, and the VIF was acceptable below 10 (Kolacz, 2002; Hair, et al., 1998; Menard, 1995; Hair, et al., 1995; Myers, 1990; Bowerman and O’Connell, 1990).

Table 7.6 shows the values of tolerance and VIF; both are in the acceptable range. All the tolerance values are greater than 0.1, and all the VIF values are less than 10.

Table 7.6 Collinearity Statistics of Predicators

Dependent Variable	Independent Variable		Statistics Collinearity	
			Tolerance	VIF*
PU	Culture	Uncertainty Avoidance (UA)	.974	1.027
		Power Distance (PD)	.927	1.079
		Masculinity/Femininity (MF)	.953	1.050
		Individualism/Collectivism (IC)	.946	1.057
		Long Vs. Short-Term Time Orientation (LST)	.989	1.011
PEOU	Culture	Uncertainty Avoidance (UA)	.969	1.032
		Power Distance (PD)	.925	1.081
		Masculinity/Femininity (MF)	.966	1.035
		Individualism/Collectivism (IC)	.947	1.056
		Long vs. Short-Term Time Orientation (LST)	.978	1.022
PU	Trust	Trust in the bank (TB)	.729	1.371
		Trust in the electronic channel (TE)	.729	1.371
PEOU	Trust	Trust in the bank (TB)	.729	1.371
		Trust in the electronic channel (TE)	.729	1.371
PU	Quality	Convenience/Accuracy (CA)	.732	1.366
		Feedback/Complaint management (FC)	.659	1.519
		Efficiency (EF)	.566	1.767
		Security/Privacy (SP)	.735	1.360
PEOU	Quality	Convenience/accuracy (CA)	.732	1.366
		Feedback/complaint management (FC)	.659	1.519
		Efficiency (EF)	.566	1.767
		Security/Privacy (SP)	.735	1.360
ATU	PU		.748	1.337
	PEOU		.748	1.337

*VIF: Variance Inflation Factor

7.1.7.1.4 Independence of Residuals and Outliers Analysis

The Durbin-Watson statistic will be used to test whether or not the assumption of residual independence is acceptable. The Durbin-Waston statistic, which tests whether or not adjacent residuals are correlated (Field, 2000), is better when it is closer to 2 (Field, 2000).

Cook's Distance and Centered Leverage values will be used to test the influence of the outliers on the regression model. The acceptable Cook's distance value is when it is less than 1 (Field, 2000; Hair, et al, 1998), while the acceptable Centered Leverage value occurs when it is closer to 0 (Field, 2000).

The Durbin-Waston values are shown in table 7.7. The independence of the residuals assumption does not violate, because the values are close to 2. The results of this analysis show that Cook's Distance and Centered Leverage values were in the preferable range. Therefore, the outliers do not have any influence on the regression model.

Table 7.7 Results of Multiple Regression Analysis

Predictors: (Constant) a.	Dependent Variable	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
UA, PD, MD, IC, LST	PU	.233(a)	.054	.041	.59404	1.820
UA, PD, MD, IC, LST	PEOU	.127(a)	.016	.003	.64265	1.697
TE, TB	PU	.438(a)	.192	.188	.54686	1.954
TE, TB	PEOU	.315(a)	.100	.095	.61238	1.802
SP, FC, CA, EF	PU	.514(a)	.264	.256	.52328	1.865
SP, FC, CA, EF	PEOU	.363(a)	.132	.123	.60289	1.734
PEOU, PU	ATU	.586(a)	.343	.340	.52367	1.764

7.1.8 Testing the Hypothesis

7.1.8.1 Hypothesis 1: Culture Vs. Perceived Usefulness

7.1.8.1.1 The Main Hypothesis 1: Culture Vs. Perceived Usefulness

To test this hypothesis, Multiple Regression Analysis (coefficient beta) was used between, PU as the dependent variable, and the Culture dimensions as independent variable.

As shown in table 7.8, the entire model has a significant effect on PU ($p=0.001<0.01$). In the entire model for all the predictors, R^2 can explain 5.4% of the variance related to PU; and thus supports hypothesis H1.

7.1.8.1.2 The Subhypotheses 1: Culture Dimensions VS. Perceived Usefulness

Table 7.8 Results of Multiple Regression Analysis for PU (Dependent Variable) and Culture Dimensions (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H1 ₁ : Uncertainty Avoidance (UA)	.067	.069	.050	.975	0.330
H1 ₂ : Power Distance (PD)	.021	.054	.021	.393	0.695
H1 ₃ : Masculinity/Femininity (MF)	.004	.031	.006	.125	0.901
H1 ₄ : Individualism/Collectivism (IC)	.182	.046	.203	3.910	0.000***
H1 ₅ : Long Vs. Short-Term Time Orientation (LST)	-.089	.048	-.094	-1.859	0.064*
Equation					
R	0.233				
R^2	0.054				
F	4.241***				

*** $P<0.01$, * $P<0.1$ ~ Dependent Variable: PU

As shown in table 7.8, the Standardized coefficient (beta) value for UA is a positive and not significant ($p=0.330>0.1$), and thus does not support hypothesis H1₁. The Standardized coefficient (beta) value for PD is positive and not significant ($p=0.695>0.1$), and thus does not support hypothesis H1₂. The Standardized coefficient

(beta) value for MF is positive and not significant ($p=0.901>0.1$), and thus does not support hypothesis H1₃. The Standardized coefficient (beta) value for IC is positive and significant ($p=0.000<0.01$), and thus supports hypothesis H1₄. The Standardized coefficient (beta) value for LST is a negative and not significant ($p=0.064>0.1$), and thus supports hypothesis H1₅.

7.1.8.2 Hypothesis 2: Culture Vs. Perceived Ease of Use

7.1.8.2.1 The Main Hypothesis 2: Culture Vs. Perceived Ease of Use

To test this hypothesis, Multiple Regression Analysis (coefficient (beta)) was used between PEOU, as a dependent variable, and the Culture dimensions as independent variables. As shown in table 7.9, the entire model has no significant effect on PEOU ($p=0.0297>0.1$), and thus does not support hypothesis H2.

Table 7.9 Results of Multiple Regression Analysis for PEOU (Dependent Variable) and Culture Dimension (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H2₁: Uncertainty Avoidance (UA)	.021	.075	.015	.284	0.776
H2₂: Power Distance (PD)	-.046	.058	-.042	-.788	0.431
H2₃: Masculinity/Femininity (MF)	.002	.033	.004	.070	0.944
H2₄: Individualism/Collectivism (IC)	.103	.050	.109	2.052	0.041**
H2₅: Long Vs. Short-Term Time Orientation (LST)	.025	.052	.025	.486	0.627
Equation					
R	0.127				
R²	0.016				
F	1.224				

**P >0.05 Dependent variable: PEOU

All of the subhypotheses (H2₁-H2₅) and culture dimensions Vs. PEOU have no significant effect on PEOU. Therefore, they do not support hypothesis H2₁-H2₅. Except H2₄, the Standardized coefficient (beta) value for IC is positive and significant ($p =$

0.041 <0.05), and thus supports hypothesis H2₄. In the entire model for all the predictors, R^2 explains 1.6% of the variance related to PEOU.

7.1.8.3 Hypothesis 3: Trust Vs. Perceived Usefulness

7.1.8.3.1 The main Hypothesis 3: Trust Vs. Perceived Usefulness

To test this hypothesis, Multiple Regression Analysis (coefficient (beta)) was used between PU, as dependent variable, and Trust as the independent variable. As shown in table 7.10, the entire model has a significant effect on PU ($p=0.000<0.01$). In the entire model for all the predictors, R^2 explains 19.2% of the variance related to PU, and thus supports hypothesis H3.

7.1.8.3.2 The Subhypotheses 3: Trust Dimension Vs. Perceived Usefulness

As shown in table 7.10, the Standardized coefficient (beta) value for TB is negative and not significant ($p=0.201>0.1$), and thus does not support hypothesis H3₁. The Standardized coefficient (beta) value for TE is positive and significant ($p=0.000<0.01$), and thus supports hypothesis H3₂.

Table 7.10 Results of the Multiple Regression Analysis for PU (Dependent Variable) and Trust (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H3₁: Trust in the Bank (TB)	-.071	.055	-.070	-1.280	0.201
H3₂: Trust in the Electronic Channel (TE)	.391	.045	.470	8.639	0.000***
Equation					
R	0.438				
R²	0.192				
F	44.397 ***				

*** $p<0.01$ ~ Dependent Variable : PU

7.1.8.4 Hypothesis 4: Trust Vs. Perceived Ease of Use

7.1.8.4.1 The Main Hypothesis 4: Trust Vs. Perceived Ease of Use

To test this hypothesis, Multiple Regression Analysis (coefficient (beta)) was used between PEOU, as the dependent variable, and Trust as the independent variable. As shown in table 7.11, the entire model has a significant effect on PU ($p=0.000<0.01$). In the entire model for all the predictors, R^2 explains 10.0% of the variance related to PEOU, and thus supports hypothesis H4.

7.1.8.4.2 The Subhypotheses 4: Trust Dimension Vs. Perceived Ease of Use

As shown in table 7.11, the Standardized coefficient (beta) value for TB is positive and not significant ($p=0.603>0.1$), and thus does not support hypothesis H4₁. The Standardized coefficient (beta) value for TE is positive and significant ($p0.000<0.01$), and thus supports hypothesis H4₂.

Table 7.11 Results of Multiple Regression Analysis for PEOU (Dependent Variable) and Trust (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H4₁ : Trust in the Bank (TB)	.032	.062	.030	.521	0.603
H4₂ : Trust in the electronic channel (TE)	.264	.051	.299	5.201	0.000***
Equation					
R	0.315				
R²	0.100				
F	20.666***				

*** $P<0.01$ ~ Dependent Variable: PEOU

7.1.8.5 Hypothesis 5: Technology Quality Vs. Perceived Usefulness

7.1.8.5.1 The Main Hypothesis 5: Technology Quality Vs. Perceived Usefulness

To test this hypothesis, Multiple Regression Analysis (coefficient (beta)) was used between PU, as the dependent variable, and technology quality as the independent variable. As shown in table 7.12, the entire model has a significant effect on PU ($p=0.000<0.01$). In the entire model for all the predictors, R^2 explains 26.4% of the variance related to PU, and thus supports hypothesis H5.

7.1.8.5.2 The SubHypotheses 5: Technology Quality Dimensions Vs. PU

Table 7.12 Results of Multiple Regression Analysis for PU (dependent variable) and Technology Quality (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H5₁: Convenience/Accuracy (CA)	.058	.031	.098	1.879	0.061*
H5₂: Feedback/Complaint management (FC)	.193	.046	.228	4.164	0.000***
H5₃: Efficiency (EF)	.202	.051	.235	3.974	0.000***
H5₄: Security/Privacy (SP)	.069	.035	.101	1.953	0.052*
Equation					
R	0.514				
R²	0.264				
F	33.361***				

*** $P<0.01$ * $P<0.1$ ~ Dependent Variable: PU

As shown in table 7.12, the Standardized coefficient (beta) value for CA is positive and significant ($p=0.061<0.1$), and thus supports hypothesis H5₁. The Standardized coefficient (beta) value for FC is positive and significant ($p=0.000<0.01$), and thus supports hypothesis H5₂. The Standardized coefficient (beta) value for EF is positive and significant ($p=0.000<0.01$), therefore it supports hypothesis H5₃. The Standardized coefficient (beta) value for SP is positive and significant ($p=0.052<0.1$), and thus it does not support hypothesis H5₄.

7.1.8.6 Hypothesis 6: Technology Quality Dimension Vs. Perceived Ease of Use

7.1.8.6.1 The Main Hypothesis 6: Technology Quality Vs. Perceived Ease of Use

To test this hypothesis, Multiple Regression Analysis (coefficient (beta)) was used between PEOU, as the dependent variable, and Technology Quality as the independent variable. As shown in table 7.13, the entire model has a significant effect on PU ($P=0.000<0.01$). In the entire model for all the predictors, R^2 explains 13.2% of the variance related to PEOU, and thus supports hypothesis H6.

7.1.8.6.2 The Subhypotheses 6: Technology Quality Vs. Perceived Ease of Use

Table 7.13 Results of Multiple Regression Analysis for PEOU (Dependent Variable) and Technology Quality (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H6₁: Convenience/Accuracy (CA)	.073	.036	.115	2.032	0.043**
H6₂: Feedback/Complaint management (FC)	.166	.053	.185	3.107	0.002***
H6₃: Efficiency (EF)	.130	.059	.142	2.214	0.027**
H6₄: Security/Privacy (SP)	.010	.041	.013	.234	0.815
Equation					
R	.363				
R²	.132				
F	14.128 ***				

*** $P<0.01$ ** $P<0.05$ ~ Dependent Variable: PEOU

As shown in table 7.13, The Standardized coefficient (beta) value for CA is positive and significant ($p=0.043<0.05$), and thus supports hypothesis H6₁. The Standardized coefficient (beta) value for FC is positive and significant ($p=0.000<0.01$); therefore, it supports hypothesis H6₂. The Standardized coefficient (beta) value for EF is positive and significant ($p=0.027<0.05$), and thus supports hypothesis H6₃. The Standardized coefficient (beta) value for SP is positive and not significant ($p=0.617>0.1$), and thus does not support hypothesis H6₄.

7.1.8.7 Hypotheses 7: PU and PEOU Vs. Attitude Toward Using

To test these hypotheses, Multiple Regression Analysis (coefficient (beta)) was used between ATU, as the dependent variable and PU and PEOU as the independent variables. As shown in table 7.14, the entire model has a significant effect on PU ($p=0.000<0.01$). In the entire model for all the predictors, R^2 explains 34.3 % of the variance related to ATU. The Standardized coefficient (beta) value for PU was positive and significant ($p=0.000<0.01$), therefore it supports hypothesis H7. The Standardized coefficient (beta) value for PEOU was positive and significant ($p0.000<0.01$), and thus supports hypothesis H8.

Table 7.14 Results of Multiple Regression Analysis for ATU (Dependent Variable) and PU & PEOU (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H7: PU	.403	.051	.380	7.835	0.000***
H8: PEOU	.295	.049	.295	6.091	0.000***
Equation					
R	.586				
R^2	.343				
F	97.842 ***				

*** $P<0.01$ ~ Dependent Variable: ATU

7.1.8.8 Hypothesis 8: PEOU Vs. PU

To test this hypothesis, Simple Linear Regression Analysis (coefficient beta) was used between PU, as the dependent variable, and PEOU as the independent variable. As shown in table 7.15, the entire model has a significant effect on PU ($p=0.000<0.01$). In the entire model, R^2 explains 26.2% of the variance related to PU.

Table 7.15 Results of Simple Linear Regression Analysis for PU (Dependent Variable) and PEOU (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H8: PU	0.485	0.039	0.512	12.547	0.000***
Equation					
R	0.51				
R^2	0.262				
F	157.43 ***				

***p<0.01 ~ Dependent Variable PU

7.1.8.9 Hypothesis 9: PU Vs. Behavioural Intention

To test this hypothesis, Simple Linear Regression Analysis (coefficient beta) was used between BI, as the dependent variable, and PU as the independent variable. As shown in table 7.16, the entire model has a significant effect on BI ($p=0.000<0.01$). In the entire model, R^2 explains 27.3% of the variance related to BI.

Table 7.16 Results of Simple Linear Regression Analysis for BI (Dependent Variable) and PU (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H9: PU	0.620	0.048	0.522	12.897	0.000***
Equation					
R	0.522				
R^2	0.273				
F	166.325 ***				

***p<0.01 ~ Dependent Variable BI

7.1.8.10 Hypothesis 10: Attitude Toward Using Vs. Behavioural Intention

To test this hypothesis, Simple Linear Regression Analysis (coefficient beta) was used between BI, as the dependent variable, and ATU as the independent variable. As shown in table 7.17, the entire model has a significant effect on BI ($p=0.000<0.01$). In the entire model, R^2 explains 33.9% of the variance related to BI.

Table 7.17 Results of Simple Linear Regression Analysis for BI (Dependent Variable) and ATU (Independent Variables)

Model (Independent Variables)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
H10: ATU	.661	.048	.583	13.882	0.000***
Equation					
R	0.583				
R^2	0.339				
F	192.702 ***				

***p<0.01 ~ Dependent Variable BI

7.1.8.11 Hypothesis 11: Behavioural Intention Vs. Actual use of Internet banking

This hypothesis suggests that the individual’s actual use of Internet banking does not vary according to their behavioural intention to use Internet banking.

To test this hypothesis (H10), One-way analysis of variance (ANOVA) was used between the actual use of Internet banking as a dependent variable and behavioural intentions as independent variable.

The results of this analysis show that the value of F is 18.582 at (0.00) level of significance. This means the rejection of the hypothesis, which stated that the actual use of Internet banking did not vary according to an individual’s behavioural intention to use Internet banking. It is therefore to be inferred that there is a significant difference between the behavioural intention of the people who are actual users of Internet banking, and those who are not users of Internet banking. These results are shown in Table 7.18.

Table 7.18 An One-way analysis of variance ANOVA Analysis of the Effect of Respondents' Behavioural Intention to Use Internet banking on their Actual Use of Internet Banking in the Bank Operation

Source of variance	Sum of squares	d.f	Mean square	F	Sig
1. Between Groups	8.954	1	8.954	18.582	0.000
2. Within Groups	213.938	444	0.482		
Total	222.892	445			

Also, to test the associated hypothesis (H11) between actual use (AU) of Internet banking (IB) and behavioural intentions (BI) in this study, we can use Univariate Analysis of Variance (UANOVA), because AU was a category variable and it gives the same results that supported H11. The hypothesis suggests that the actual use of Internet banking varies according to behavioural intention to use Internet banking. The mean, standard deviation and numbers of those who actually use Internet banking (see Table 7.19, 7.20 and 7.21) is M=4.1159, SD= .43845, n = 69, while but the mean, standard deviation and numbers of those who do not use Internet banking is M= 3.7241, SD=.73090, n = 377. Where, F = 18.582 at (p= <0.01) 0.000 significance level. Therefore, H10 is supported. Also, $\eta^2 = 8.954 / 222.892$ (i.e., Partial Eta Squared) = 0.04017. This showed that 4.0% of the variance in behavioural intention could be explained by differences between no use at all and the actual use of Internet banking (Francis, 2004).

Table 7.19 Descriptive Statistics the Using Internet Banking and Behavioural Intention

Dependent Variable: bi

Using internet banking	Mean	Std. Deviation	N
Yes	4.1159	.43845	69
No	3.7241	.73090	377
Total	3.7848	.70773	446

Table 7.20 Tests of Between-Subjects Effects

Dependent Variable: behavioural intentions (bi)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8.954(a)	1	8.954	18.582	.000	.040
Intercept	3585.061	1	3585.061	7440.307	.000	.944
Actual use of IB	8.954	1	8.954	18.582	.000	.040
Error	213.938	444	.482			
Total	6611.556	446				
Corrected Total	222.892	445				

a R Squared = .040 (Adjusted R Squared = .038)

Table 7.21 Univariate Tests

Dependent Variable: bi

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	8.954	1	8.954	18.582	.000	.040
Error	213.938	444	.482			

The F tests the effect of using Internet banking. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

The next subheading, Table 7.22 and Figure 7.3, will present the research model to demonstrate the significant relationships of the regression.

Table 7.22. Summaries of Types of Data Analysis and Results for each Phase

Phase	Analysis type	Hypotheses		Independent Variable	Dependent Variable	Result of the Analyses	
		Main	Sub				
1	Multiple Linear Regression	H1		Culture <ul style="list-style-type: none"> ▪ Uncertainty Avoidance (UA) ▪ Power Distance (PD) ▪ Masculinity/Femininity (MF) ▪ Individualism/Collectivism (IC) ▪ Long- VS. Short-Term Time Orientation (LST) 	Perceived Usefulness (PU)	0.330	
			H1 ₁			0.695	
			H1 ₂			0.901	
			H1 ₃			0.000***	
			H1 ₄			0.064*	
		H1 ₅					
		H2		Culture <ul style="list-style-type: none"> ▪ Uncertainty Avoidance (UA) ▪ Power Distance (PD) ▪ Masculinity/Femininity (MF) ▪ Individualism/Collectivism (IC) ▪ Long- VS. Short-Term Time Orientation (LST) 	Perceived Ease of Use (PEOU)	0.776	
H2 ₁	0.431						
H2 ₂	0.944						
H2 ₃	0.041**						
H2 ₄	0.627						
H2 ₅							
H3		Trust <ul style="list-style-type: none"> ▪ Trust in the bank (TB) ▪ Trust in the electronic channel (TE) 	Perceived Usefulness (PU)	0.201			
	H3 ₁			0.000***			
H4		Trust <ul style="list-style-type: none"> ▪ Trust in the bank (TB) ▪ Trust in the electronic channel (TE) 	Perceived Ease of Use (PEOU)	0.603			
	H4 ₁			0.000***			
H5		Technology Quality <ul style="list-style-type: none"> ▪ Convenience/accuracy (CA) ▪ Feedback/Complaint management (FC) ▪ Efficiency (EF) ▪ Security/Privacy (SP) 	Perceived Usefulness (PU)	0.061*			
	H5 ₁			0.000***			
	H5 ₂			0.000***			
	H5 ₃			0.052*			
H6		Technology Quality <ul style="list-style-type: none"> ▪ Convenience/accuracy (CA) ▪ Feedback/Complaint management (FC) ▪ Efficiency (EF) ▪ Security/Privacy (SP) 	Perceived Ease of Use (PEOU)	0.043**			
	H6 ₁			0.002***			
	H6 ₂			0.027**			
	H6 ₃			0.815			
H7			Perceived Usefulness (PU) Perceived Ease of Use (PEOU)	0.000***			
	H7 ₁			0.000***			
2	Simple Linear Regression	H8	-	Perceived Ease of Use (PEOU)	Perceived Usefulness (PU)	0.000***	
			H9	-	Perceived Usefulness (PU)	Behavioural Intention (BI)	0.000***
				H10	-	Attitude Toward Using (ATU)	Behavioural Intention (BI)
3	ANOVA	H11	-	Behavioural Intention (BI)	Actual Use (AU)	0.000***	

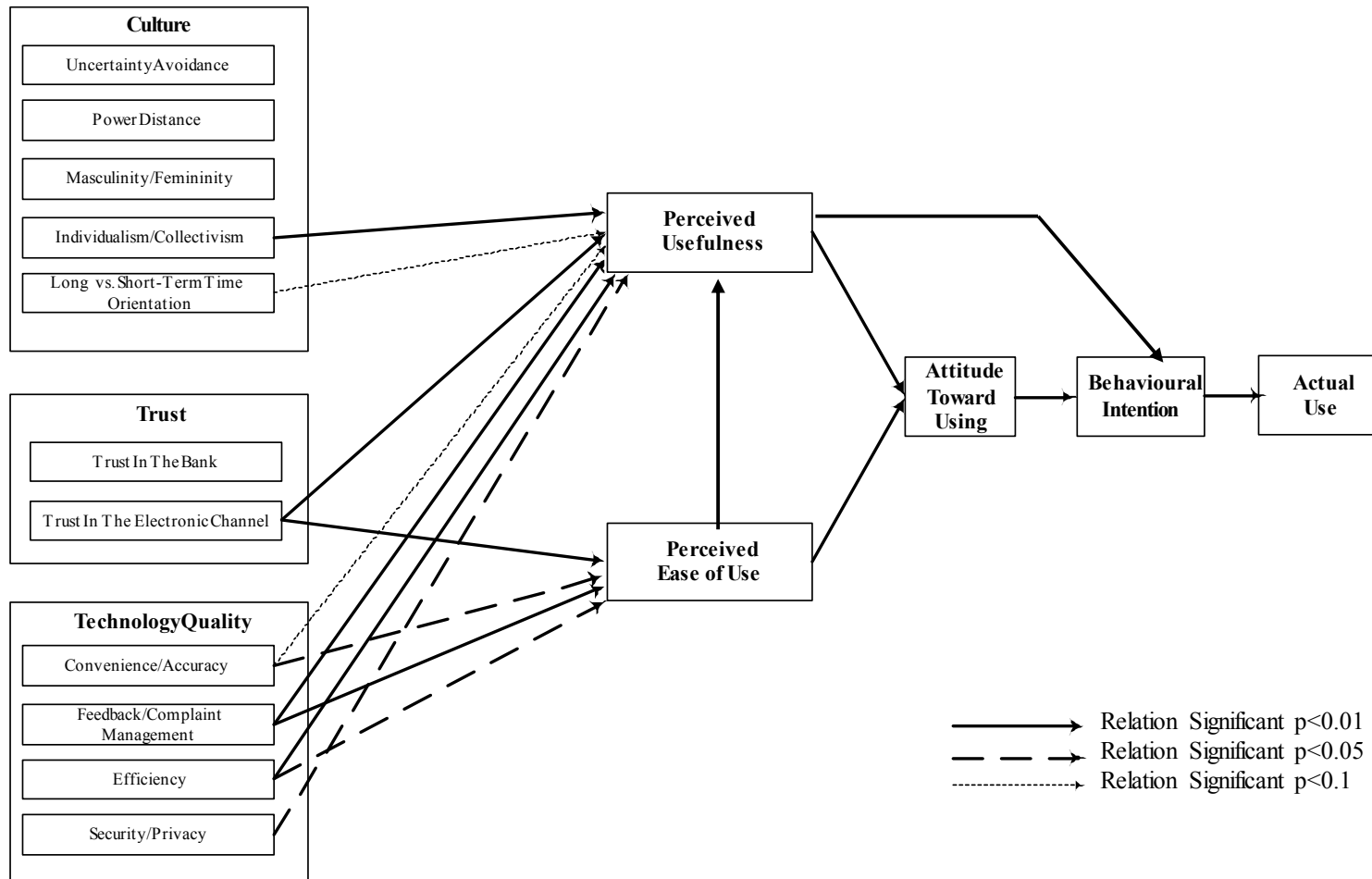
Statistical Significance

*** Correlation is Significant at <0.01

** Correlation is Significant at <0.05

* Correlation is Significant at <0.10

Figure 7.3 Significant Relationships in Regression Model



7.1.9 Selecting the Best Model by Stepwise Regression Analysis

The stepwise regression was performed to get the most efficient predictions of dependent variable values and provide the best model. In a stepwise regression all variables are entered at once; this allows system software to perform calculation and provide the greatest R^2 . R^2 represents the proportions of variance of the dependent variable that are accounted for by the independent variables (Francis, 2004).

In order to select the best stepwise regression model for culture, trust, quality, PU and PEOU in order to address the research question, analyses were performed separately for:

1. the predictor variables as in the research model, and
2. the predictor sub-variables as in the research questionnaire.

In progressively building the stepwise regression model for culture, trust, quality, PU and PEOU, no variable was eliminated after it entered a model. The results of each analysis were checked to ensure there was no violation of the assumptions of normality, linearity and homoscedasticity. More details on the checking of the assumptions are presented in Table 7.25, 7.26 and Table 7.27.

The best model for culture, trust and quality constructs and PU is shown in Table 7.23. Also, the best model for the culture, trust, quality constructs and PEOU is shown in Table 7.24. Moreover, The best model for PU, PEOU constructs and ATU is shown in Table 7.25.

7.1.9.1 Results of the Stepwise Regression Analysis

The results of the stepwise regression analysis are shown in Tables 7.23, 7.24 and 7.25 for culture, trust, quality, PU and PEOU. Table 7.24 shows the result of stepwise multiple regression analysis for the perceived usefulness as a dependent variable and culture, trust and technology quality as independents variables. The results show that, 30.7% of the variance in perceived usefulness was explained by UA2, relates to uncertainty avoidance; MF3 relates to masculinity/femininity and IC1, relating to individualism/collectivism of culture dimensions. The above percentage value (30.7%) was also explained by TE4 and TE1, which relates to trust in the electronic channel about the trust dimensions. As well, 30.7% of the variance in PU was explained by (EF2) and EF1, which relates to the Efficiency and FC1 relating to feedback/complaint management of technology quality by banks.

Table 7.23 Stepwise Analysis - a Dependent Variable: PU

Variables Entered (In order)	From Construct	Standardized Coefficients (Beta)	t	Sig.
4-UA2	Culture (Uncertainty Avoidance)	.116	2.843	.005 ***
6-MF3	Culture (Masculinity/Femininity)	.117	2.866	.004 ***
7-IC1	Culture (Individualism/Collectivism)	.105	2.598	.010 ***
3-TE1	Trust (Trust in the Electronic Channel)	.164	3.761	.000 ***
8 -TE4	Trust (Trust in the Electronic Channel)	.125	2.776	.006 ***
5-EF1	Technology Quality (Efficiency)	.130	2.757	.006 ***
1- EF2	Technology Quality (Efficiency)	.134	2.705	.007 ***
2- FC1	Technology Quality (Feedback/Complaint Management)	.160	3.303	.001 ***
Equation				
R	0.554			
R²	0.307			
F	24.227 Sig. F= 0 .000 ***			

*** P <0.01, ** P <0.05

The result of the stepwise multiple regression analysis for the perceived ease of use as a dependent variable and culture, trust and technology quality as independent variables are as shown in Table 7.24. The results show that 24.1% of the variance in perceived ease of use was explained by UA1 and (UA5), which relates to uncertainty avoidance; PD6 relates to power distance. Moreover, 24.1% of the variance in PEOU was explained by LST1, and relates to the long vs. short-term time orientation of culture; TE1, relates to trust in the Electronic Channel, TB3, relates to trust in the bank. The above percentage (24.1) of the variance in PEOU was explained by FC1, and relates to feedback/complaint management; CA3 relates to the convenience/accuracy of the technology quality.

Table 7.24 Stepwise Analysis - a Dependent Variable: PEOU

Variables Entered (In order)	From Construct	Standardized Coefficients (Beta)	t	Sig.
8- UA5	Culture (Uncertainty Avoidance)	-.087	-2.023	.044**
3-UA1	Culture (Uncertainty Avoidance)	.126	2.946	.003 ***
5-PD6	Culture (Power Distance)	-.080	-1.900	.058**
7- LST1	Culture (Long Vs. Short-Term Time Orientation)	.091	2.157	.032**
6- TB3	Trust (Trust in the Bank)	.102	2.296	.022**
2-TE1	Trust (Trust in the Electronic Channel)	.148	3.315	.001 ***
1- CA3	Technology Quality (Convenience/Accuracy)	.219	4.131	.000***
4-FC1	Technology Quality (Feedback/Complaint Management)	.147	2.850	.005 ***
Equation				
R	0.491			
R²	0.241			
F	17.382 Sig. F= 0 .000***			

*** P <0.01, ** P <0.05

Moreover, Table 7.25 show the result of stepwise regression between attitude toward using as a dependent variable, and perceived usefulness as well as perceived ease of use

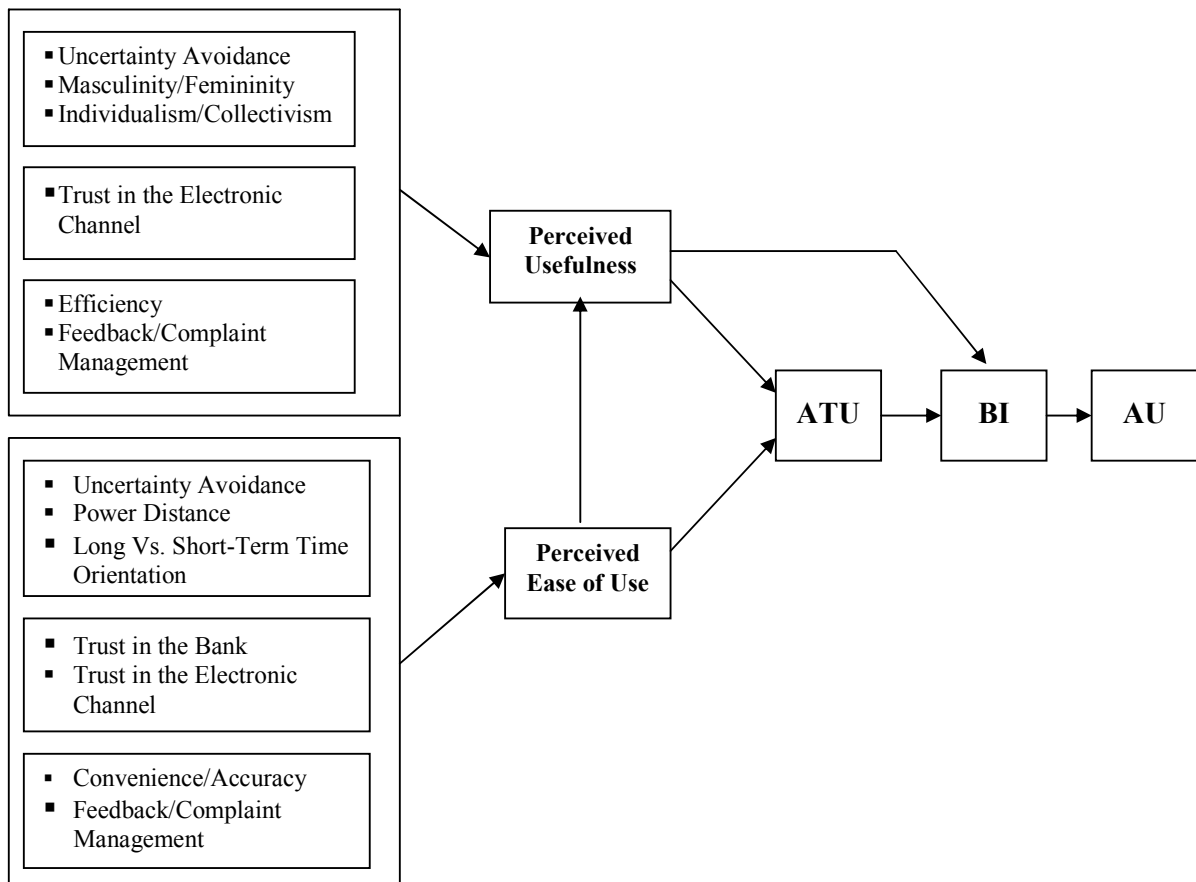
as independent variables. The results show that 37.6% of the variance in attitude toward using was explained by PU3 and PU10 relates to the perceived usefulness of Internet banking and PEOU3 relates to the perceived ease of use of Internet banking.

Table 7.25 Stepwise Analysis - a Dependent Variable: ATU

Variables Entered (In order)	From Construct	Standardized Coefficients (Beta)	t	Sig.
3- PU3	Perceived Usefulness	.167	3.315	.001 ***
1- PU10	Perceived Usefulness	.261	5.140	.000 ***
2- PEOU3	Perceived Ease of Use	.341	8.325	.000 ***
Equation				
R	0.613			
R²	0.376			
F	88.749 Sig. F= 0 .000***			

*** P <0.01, ** P <0.05

Figure 7.4 The Best Model of Significant Relationships in Stepwise Regression



7.2 Semi-structure Interviews

7.2.1 Overview

The purpose of conducting the interviews was to supplement data from the questionnaire survey. They provided an opportunity for greater flexibility to explore and understand the issues underpinning the quantitative findings. Qualitative data from the interviews were analysed in order to illuminate important aspects of the adoption and use of Internet banking from the bank manager's perspective. This part of the study examines their beliefs and attitudes towards the new technology, which supports Internet banking in Jordan and its affect on their business.

There is no widely agreed upon sample size for the number of interviews in a study Spector (1992) simply recommends a small sample. It was therefore considered adequate to conduct 16 key informant interviews. The interviews were carried out on a representative sample randomly chosen from IT experts, Jordanian bank managers, and suitable academics.

16 semi-structured interviews were conducted to achieve stability as noted above. Ten of the interviewees were bank managers, and three IT experience in relationship Internet banking. The other three interviewees were university consultants, who had been in this field for a considerable period of time. They came from the Departments of Social Science fat universities in Jordan and were interviewed to get data about the culture and trust of the banking environment.

The interviewees were sent letters of invitation (participant consent) asking them to agree to participate in this study, and informing them about the research process. All respondents read the procedures as set out in the information sheet and understood what was expected of them

The data collected at the semi-structured interviews was translated and transcribed into text documents, which were analysed as a collection using Leximancer, as explained in Chapter Three.

7.2.2 Reliability and Validity of the Interviews Analysis

Individual interviews are designed to obtain information regarding personal perceptions and experiences, and are accepted as a valid representation of that individual's perceptions (Kvale, 1989; Yin, 1994).

Reliability: Reliability of information obtained in individual interviews can be assessed by asking for a repeat of information later in the interview, or by re-interviewing the respondent about key points. Several interviewees reporting on the same topic can also (re) assess it. Valuable information obtained in one interview can be tested in subsequent interviews by asking about similar experiences (Sekaran, 2000; Emory and Cooper, 1991; Dick, 1990; Guba and Lincoln, 1994).

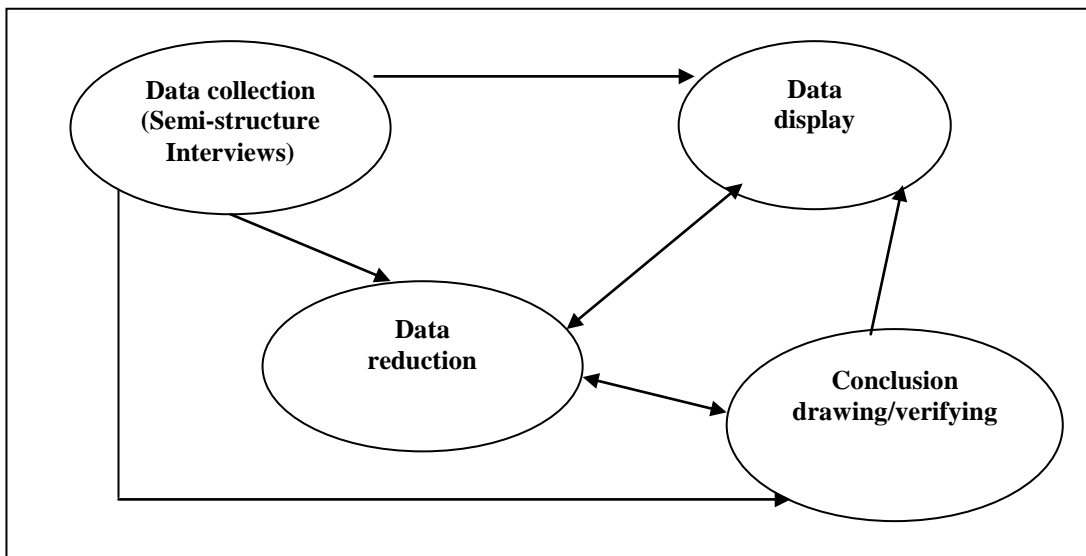
Validity: the validity of the reported information can sometimes be assessed through comparisons with other sources of data. In this case, this was done generally, as the interview findings were compared to the results of the survey. (Emory and Cooper,

1991; Dick, 1990; Sekaran, 2000; Zikmund, 2000; Patton, 1990; Sekaran, 2000; Emory and Cooper, 1991).

7.2.3 The Interview Data Analysis Approach

As described in Chapter Three, the iterative data analysis model of Miles and Huberman has been followed as shown in figure 7.5 this incorporates the four phases of data collection, data reduction, data display, and drawing, and verifying conclusion.

**Figure 7.5 The Iterative Data Analysis Model (Miles and Huberman, 1994, p12)
Components of Qualitative Data Analysis**



7.2.3.1 Data Reduction and Display –Quotes

As shown in the following table 7.26 there are three groups, each group was given codes as shown:

Table7.26 The Groups and Codes

Name of the Group	Code	Number
Bank manger group	BM	BM1 to BM10
IT person group	ITP	ITP1, ITP2 and ITP3
Academic group	A	A1, A2 and A3

The following are selected quotes from the semi-structure interviews

Group One -Bank Mangers (BM)

“There is many point should discuss this is from my experience and it is the reason for the people until now don’t accept the new technology in the Jordanians bank sector such as (BM1): ”

- *Lack of banking services through the web due to the limited number of banks using the Internet.*
- *Data and network security in addition to privacy problems, which inhibit the confidence of customers and could lead to major problems for the banks.*
- *Lack and limitation of Government policies, regulations and E-Commerce laws and legislation to protect workers and make the Internet secure.*
- *Lack of Infrastructure and weak telecommunications.*
- *Broken and slow Internet connections throughout the region.*
- *Lack of Internet awareness, because this service is still widely unacceptable. It is believed that customers are still not fully confident with using ATM cards, visa cards, and telephone banking. Greater awareness could show them the benefits of using new systems and could encourage them to adopt Internet banking transactions*

“Security plays an important role in Internet banking and so there are several protocols for Internet security of encrypted data packets. Customers are not aware of the encryption.-From my experience there is many Factors influencing IT adoption such as Infrastructure, education, financial sector and Market, Lack of expertise, Lack of basic IT skills, Inefficient banking, Low per capita income, Administration, Political instability, inadequate telecommunication systems, Lack of technological supports and Social factors. The Security criteria affect the people awareness and understanding of online banking through the internet, The customer always a concern about for Security, There is always need for consumer education on security needs and how to use online banking, the security measures are mostly represented in hardware and software, account information and online transaction and surveillance systems. Further more when the banks want to develop the security system they should recognize the customer

needs such as the customers' web PIN should not store in any bank system, the PIN is also verified by black box-hardware devices (BM2). ”

“We must attempt to understand the factors affecting individuals' readiness by suggesting Internet banking like the skills and experience, and individuals' culture is important determinants. We looks to the individuals' readiness in the banking industry will be positively encouraging. Moreover, male employees seem to be more ready to accept the new technology in there banks. Nevertheless, issues on employees' level of discomfort and insecurity in dealing with data mining should not be ignored (BM3). ”

“Ensuring security and confidentiality are the fundamental prerequisites before any banking activity involving sensitive information can take place. Cultural environment is important element promoting sustainable development of the new technologies. Low literacy rates and lack of appropriate skills or managerial abilities determine high failure risks of IT implementation. Language may represent a barrier, especially for the Internet applications. Differences among culture play a key role in the development and transfer of IT. Lack of awareness about the benefits of online banking was the main cause of slow adoption by consumers (BM3). ”

“The benefits of Internet Banking provides as perceived by top management (e.g., Improving the competitive position, Improving bank's image, Meeting customers demand for the service, Creating new markets, Reducing operational costs, Reducing administrative costs, Reducing workforce) as well as by consumers (e.g., Faster services, Easier services, More diverse services, More reliable services, Low cost services) (BM3). ”

“Internet Banking uses 40-bit and 128-bit encryption, to help safeguard sensitive online transaction information. Encryption is a process that transforms sensitive information into a string of unrecognizable characters before they are sent over the Internet and helps keep your information private between the bank's computer system and your Internet browser. Your browser should at least support 40-bit encryption to use Internet Banking. Bank Security is one of a new breed of banks that avoid face-to-face contact with their customers by transacting over the Internet. Internet Banking is a FREE service to all bank customers and believes of the user online customers have confidence in using its Internet banking facility because of its strict application process. Believes the user online customers have confidence in using its e-banking facility because of its strict application process (BM3). ”

“Security of a transaction, authenticity of a deal, identification of a customer etc. are important technological and systems issues, which are major sources of concern to e-commerce. Equally important are questions of repudiation of a deal, applicability of “law, jurisdiction of tax laws etc. The security issues are more pronounced because of high value transfers taking place through the net. So also are the issues relating to privacy of information, law, tax repudiation etc. The other issues of importance to a B2B firm are the choice of appropriate technology, the issues of build or outsource, maintenance and training of personnel, etc., since they involve large investments and are critical to success (BM4). ”

“It is important that Jordanian banks, academicians, computer specialists, and people at large all give serious attention to Internet banking in the days ahead. People education will be crucial in this regard. Once customers are convinced about the multifarious advantages of this fascinating banking, they will start asking for this service from their banks thus putting pressure on the banks to go ahead fast with Internet Banking. But as the things stand today one cannot expect till 2004 for Jordanian banks to make a dent into Internet banking. And till this happens we Jordanian will continue to go to ATMs and bank branches to withdraw cash or know our account balances!!!! (BM4). ”

“Internet banking has a lot of potential in the Jordanian banking industry if the concerns of the customers (security, privacy, cost ...) can be addressed. The main concern which is hindering is security concern if this perception is overcome then we see no reason why Internet banking cannot become the main distribution channel in the future. Online security continues to be a major concern to the world of online banking and the solutions on offer at present are no panacea for problems likely to happen in the future. Even public key cryptography can fall short of security standards if banks do not define the right level of trust for their organization (BM4). ”

“Challenges of Operating a Bank Web Site: Marketing and promotion, Personnel training, Auditing the Internet banking system, Controls for Internet security, Support for customer, Technical problems, Responding to customer e-mail, Processing transactions generated online and Managing intruder attacks (BM5). ”

“Jordanian banks are desperately embracing this new distribution channel to prepare themselves for the competition that is looming in the near future. Security, availability of infrastructure and complexity of technology are the main concerns which is hindering the migration from traditional banking to Internet banking (BM6). ”

“Internet Banking is one of the fastest, most convenient ways to access your Bank accounts, view balances, and transfer funds. Using your unique Access ID and password, you can perform banking transactions online, whenever and wherever you want, from any PC with Internet access. It's easy, convenient, and best of all, it's available to you anytime. All you need to start banking online is Bank account, a PC with Internet access and a browser that supports a minimum 40-bit encryption. There is no special software needed to access Internet Banking (BM6). ”

“The importance factors are Social contacts; ease-of-use, benefit, price, speed, and security seemed to be important for non-users. All users valued security, speed, ease-of-use, price, and free from time and place. From my experience the non-users' internet banking are more loyal to their bank than users, because non-users placed more weight on the bank's name and contacts with the banking personnel than users did. The communication infrastructure is crucial for the growth of IT. The electronic work uses the Internet to access the bank without custom software. This idea of banking requires both changes in the way people do business and trade-offs people may not have measured (BM6). ”

“The biggest problems people have with online banking involve security, that's why it's vitally important to understand how your bank addresses security in an online environment. On the other word, the banks sector in Jordan must use very high technology in encryption in order to provide safety and privacy and customers should be aware that not only is Bank responsible for securing your confidential information, but that without a firewall and virus protection on your PC you are vulnerable to information theft. Still the opportunities are available to Jordanian banks in order to strengthen their on-line presence and assure both security and privacy of their operations to customers (BM6). ”

“By the end of 2000 only one bank in Jordanian had this service. That means the growths of Internet banking are walk slowly not in Jordanian alone but in all country. There is always a need for consumer education of Internet users and improved Customers' perception. From my experience, I found security, awareness, cost and resistance to change are very important and the Jordanian consumers go through a process of knowledge, persuasion, decision and confirmation before they are ready to adopt a product or service after that they will use (BM9). ”

“Many explanations for the slow growth of Internet banking in Jordan are: Firstly, Security concerns. All issues about Internet banking, online banking or web site banking argue “security concerns” are very important. Clear and understandable instructions, Security of Internet transaction, Length of Internet experience). The sites boast of the latest 128-bit encryption technology to allay fears of security among consumers. Soundly, Lack of knowledge. Consumers go through a series of process in knowledge before they are ready to adopt a product or service and the adoption or rejection of the innovation begins when the consumer becomes aware of the product and the importance of awareness for the adoption of any new innovation. -Trust in Bank (Banks reliability in correcting erroneous transactions, Trust in the bank to compensate for losses due to security infringements, Banks response rate to queries). - Reluctance (Willingness to adopt technology enhancement, Level of awareness of current trends, Attitude towards change). Thirdly, Not user-friendly. -Ease of Use (Ease of performing Internet banking transaction, Ease of Navigation in the banks site). -Convenience (Time saving, Convenient way of doing bank transactions). The creation of awareness among the consumers of the product or service. Fourthly, Accessibility, Lack of access to computers/Internet. (Internet Access, Internet Connection speed) and the Costs (Cost of Computers, Cost of Internet connection). The Jordanian government provided the legal framework for domestic banks to offer Internet banking services as of 2000 (BM9). ”

“Online security continues to be a major concern to the world of online banking and the solutions on offer at present are no panacea for problems likely to happen in the future. “There is always a need for consumer education on security and Internet users. Security measures include encryption technology, security hardware and software to protect customers' account information and online transactions, and surveillance systems, and adopted the use of digital certificates. There are many different psychological and behavioural issues such as trust, security of Internet transactions, reluctance to change, and preference for human interface, which appear to impede the growth of Internet banking and affect the adoption of any new innovation. Some consumers have generally

been afraid of new technology. These consumers maybe not have the knowledge or know-how to deal with computers (BM9). ”

“Banks are moving towards multi-channel banking services with lower costs to customers and the increase in the adoption of Internet banking services and the increase in the number of banks offering Internet banking services in Jordan are basically due to the fact that Jordanian consumers are becoming increasingly computer literate and have access to the Internet in larger numbers, also, he will adopts Internet banking if he saves time, cost and have trust in the bank. There is always a need for changes in the way people do business and trade-offs people may not have considered, The old problem with people in online the security, it is very important to understand how your bank makes the security in an online banking environment. To do more safety and security on the online banking they must make more control in the signatures, and sophisticated reproduction equipment (BM9). ”

“The individuals influence others especially in their work field, relation and families, when individuals adopt and use the new idea which comes from perceive the benefits their families, friend and all relative adopt this idea as well, therefore the individual use is passed to group use, this shows that the process start with individual and end with group practice, in my point of view It is just a matter of time to spread out this service, and service adopter are increasing every year, and as I said that the individual usually try to monitor others experience to evaluate the taken risk, majority don't risk using new technology unless it is used by the people who close to them or have trust on them. You can say that there is better future attitude toward this service, there is a big responsibility on the bank to market this service, because the individual don't see the benefit from using it, benefit can't be measure from only one or two single case therefore the use should be continuously, by day to day client will know the cost, time saving, convenience, satisfaction...etc in using this service, consequently bank should always try to concentrate on through different marketing media (BM9). ”

“In my opinion banks have the big responsibility because it should follow up all scientific and practical procedure and programs to encourage individuals and organization to use and adopt the service whether through using media, instruction brochures, in-field visits...etc., what is the benefit of providing this service in the first place! Where is the visibility study and strategic planning! And it is well known it is required high cost from bank to provide new services whether by buying or developing software, training the employees, and preparing infrastructure. Banks consider paying all these expenses to get the benefit at the end, which include increase in the market share, income, competition, etc. On the other hand clients should have the knowledge, loyalty, and high trust on their banks, these entire factor encourage them to use any service provided by their banks after knowing the received benefit (BM9). ”

“It is very important to check the quality of Internet banking technology especially security, accuracy, efficiency and privacy issues, website interface should be also simple, easy to use, convenience (24hours/7days), attractive, flexible, and understandable (i.e. use more than one language interface). Security and privacy issues is considered the most important part according to customers, and if it dealt with in a

good way and convince the client the following up activities will become easier, client should be convince that it is impossible to any other parties to get any private information (i.e. bank account and personal information), banks should inform their client that they use the most new coding technology which safe them from hackers, finally we should make sure again and again that client trust is very important and it have a big role in adopting this service, as well as trust in bank lead to trust in all bank services. On the other hand the responsible party of infrastructure whether it is communication or law issue is central bank, which represents the government who is looking for improving economic situation trough improving bank sectors (BM9). ”

“My conclusion was: most Jordanian banks have a web site to describe its services, but there are a lot of fears for the use of the E-banking. The biggest problems which face them are: first the used technology, second securing the consumers, third the level and culture of the consumers where most of them don't have a PC and they don't have the electronic knowledge so they will face difficulties with the electronic banks. But the consumer can do any transaction from his home, office or anywhere else but through the Internet in any time. So we hope that the Jordanian banks will reach this level at least the big banks then after a while the smaller banks will do the same. Also we hope that people will be taught to use this service because they might do all the transactions through their offices without any effort and more over they will save their time because they will not leave the place they are in especially for the owners of the business and the companies (BM10). ”

“The competition became the aim of these banks. So the are looking forward to introduce as much as they can from the services to the consumers to attract them. As I heard from The Chief of Banks Society in the USA that the electronic banks in the developed countries will not deal with the traditional banks unless they developed their selves and become like them, so the banks in the undeveloped countries will be forced in the future to develop their selves by adding this kind of services in order to deal with these international banks (BM10). ”

“The main point is the security and privacy of the net. There is fear and worries about the online security and privacy, which could be recognized internationally, so if this problem would not be solved there would be no progress. Here in Jordan people worry about the data and the account security which they will deal in it in the internet. So we should find a way to save these people and then to persuade them. I think the developed countries will reach to more secure technology and of course we will buy this technology even it will cost us a lot of money but its good benefits will cover the cost (BM10). ”

“In fact the bank and the training Banking College should train the entire employee on the E-banking. Now we started on the studying banking college a new program to train the employees themselves because they are the best to market this service because they are in a direct touch with the consumers. Despite the training cost us a lot, all the banks train their employee. In order to go over the gap between the employee and the

development departments we should experiments this new service on the employees themselves then we can advertise it. So our problem when we put a new service without experimenting it (BM10). ”

Group Two -IT People (ITP)

“The successful implementation and development of online banking are influenced by many inter-related factors and institutions, including the quality and security of Internet network, the level of Internet knowledge of the population, the government support, as well as the Internet strategy of the bank and the quality/reliability of online banking services (ITP1). ”

“Maybe because of the complications involved about security and reliability, as also about the lack of knowledge of Internet in Jordan or whatever, it is obvious that banks in Jordan are moving slowly and with caution into the Internet banking. The prime reasons are of course the concern for security and reliability. It is important that Jordanian banks, academicians, computer specialists, and people at large all give serious attention to Internet banking in the days ahead. People education will be crucial in this regard. Once customers are convinced about the multifarious advantages of this fascinating banking, they will start asking for this service from their banks thus putting pressure on the banks to go ahead fast with Internet Banking. But as the things stand today one cannot expect till 2004 for Jordanian banks to make a dent into Internet banking. And till this happens we Jordanian will continue to go to ATMs and bank branches to withdraw cash or know our account balances!!!! (ITP1). ”

“Security of Internet banking transactions is one of the most important areas of concerns to the regulators. Security issues include questions of adopting internationally accepted state-of-the art minimum technology standards for access control, encryption / decryption (minimum key length etc), firewalls, verification of digital signature, Public Key Infrastructure etc. The regulator is equally concerned about the security policy for the banking industry, security awareness and education (ITP1). ”

“Therefore the two sides banks and customers should share the effort to service success through, Promote and advertise for the service which is the responsibly of the bank and Educate customers to understand benefit of using the service. I am as a human being why I don't use the service if I find a degree of suitability and easiness, Maybe because of the complications involved about security and reliability, as also about the lack of knowledge of Internet in Jordan or whatever, it is obvious that banks in Jordan are moving slowly and with caution into the Internet banking. The prime reasons are of course the concern for security and reliability. It is important that Jordanian banks, academicians, computer specialists, and people at large all give serious attention to Internet banking in the days ahead. People education will be crucial in this regard. Once customers are convinced about the multifarious advantages of this fascinating banking, they will start asking for this service from their banks thus putting pressure on the banks

to go ahead fast with Internet Banking. But as the things stand today one cannot expect till 2004 for Jordanian banks to make a dent into Internet banking. And till this happens we Jordanian will continue to go to ATMs and bank branches to withdraw cash or know our account balances (ITP2). ”

“Jordanian banking industries do exhibit weaknesses in the advanced levels of all web opportunities, particularly with regards to customer relationships. Jordan has a number of inherent difficulties in promulgating a web banking culture. Web banks live in the domain of an electronic business environment and E-commerce. The key element of success in this environment is the development of telecommunication infrastructure. The major challenge facing further development of web banking in Jordan, is, for example, the high cost of telecommunication. Another element is the non-availability of information technologies, packages, solutions, and human resources, which facilitates optimum use of technology (ITP2). ”

“Security remains the main concern of Internet banking. Security should always come first as any mishap would cost the bank severe losses and jeopardize its reputation as well as reduce public confidence towards Internet banking. To make sure that there is no room for mishaps, all banks that provide Internet banking should operate at the highest level of security. These banks depend on Secure Sockets Layer protocol as well as 128-bit encryption to encrypt data entering the bank server and verify the bank server to the user (ITP2). ”

“Possible inhibitors to successful online e banking. Firstly, Lack of client confidence in Internet security. Secondly, might look complicated for people without computer literacy. Also to improve your online e-banking success for Banking Products; firstly, Creating confidence in the client's mind that the Internet has the same degree of security as other channels and Setting up some free training sessions to increase customer awareness (ITP3). ”

Group Three –Academics (A)

“Trust is very important which is have direct relation with customer culture, trust in bank produce trust in its services, therefore when customers have knowledge about current improvements definitely he will adopt these services without any fear (A1). ”

“The customers who use the internet banking service do not exceed 15% according to available statistics as I told in the bank, the reason for that, Probably income level have a big role in this and cost issues as well, because customer should have internet access trough his home or work personal computer, or in some case from internet café, accessing internet is costly because the required infrastructure and having a telephone line in the first place, people with regular income level found it unfeasible to use these service in bank sectors, because at the time they receive their salaries they start to use it for regular daily life expenses(A1). ”

“Banks should have attitude toward making individuals to use these new technologies in order to facilitate better services to gain customers satisfaction, this can be done using instructive communication through advertisement media, brochures, in field visits either in customers homes or offices, or train teller to be able to spread these services directly to the customers, customers will recognise the benefits from using these services and compare it with expenses and if the benefits is higher than expenses they will definitely use it, moreover bank should provide these services directly when the customer open new account and don not wait till the customer request for it and therefore adopting phase will be longer if you leave providing these services to customer’s request(A1). ”

“Since 2000 until now about 5000 user use this service the rate of this growth as a beginning is good but still a small number compared with the number of our consumers. From my long experience in development and research department the following: The bank used to conduct a workshop regularly and continuously through the banking training college which is one of the bank departments to increase the employee's knowledge that starts to market the new service in the visit of the consumers to the branch. More over there are a special department, which is specialized in the marketing of the new service. The bank is realised that there is a gap in the consumer's culture about the new technology. This gap differs from one to another depending on his career, education and age so you can find an old fashion consumer (traditional (or some of them who likes to use the newest technology. the bank offers a high quality service from all view regarding the security, privacy accessibility ...etc but the consumers in Jordan have a limit understanding for the new technology. So to deal directly with the bank is considered more save and trustful because the consumers deal with some thing physically not through a screen. There is a problem facing the bank; that is the branch's employees are from different levels of knowledge, they might not have enough knowledge of the service which means that the employees culture plays a big role in marketing this service. Through our field visits we recognise that some of the consumers don't know about the services, which are offered from their banks (A1). ”

“Through our field visits we recognise that some of the consumers don’t know about the services, which are offered from their banks. Some consumers like to be respected so when they deal with the machines it would not know their positions or respect them as they wish; so they don’t like to ldeal with these machines. We are facing another problem called the extra expenses; I mean when we explain the idea to the consumer he accept it but there will be some obstacles like he don’t have a PC in his home or office, even if he has a PC then he will face another problem which is how he will connect to the internet because it will cost him more. So that he will not use this service because of these obstacles. Some people don’t have any knowledge about the PC technology as a result they don’t have any knowledge about the internet, even if there is a PC in his home for any reason as his children in the school or university they think that its Too late for them to learn using the technology because they believe they have other duties which is more important than take the knowledge using technology, this group is usually from the old persons. There is a special department in the bank which market the use of technology and focuses mainly on the corporations; because if these corporations use this way they will gain the time and the bank save the cost and the pressure which will be suffered by the branch. Another important point is that the government started to

restrict the use of this technology by making new regulations to control these movements (A1). ”

“Regarding the Jordanian market, I think the situation is better, for the coming 10 years the banks should try to mix the traditional work and the comprehensive use of the Internet. At least they have to support its banking services on the Internet. We find that this transfer in the is existing now but in a very slow way, because most of the banks have a web site but they do offer only a very small bundle of normal banking services which don't concern with the financial transaction. This is for many reasons, before the subject of trust, the average of the access to the computer is very weak. If we compare Jordan with the Arab countries we will find that we are at the top. Even so we find that the average is very low and the Internet cost is still high compared to the personal income. In addition to other factors like culture and the trust regarding this model of activity. Many researchers feel that the Jordanian banks keen towards these services not because they are convinced by it but as a kind of going side by side by the technology, there is a difference between convenient and a new fashion or offer a service for the competition. If we take a glance at the bank's web we will find that it is weakly designed. Its database is not updated. So how can they offer any service with old data? Their data should directly update. Taking in consideration that the situation of the Jordanian banks is better than the other Arab banks; because the other banks have only an advertising web for itself without any actual services through the web (A2). ”

“These banks invested in the information technology without a fulfilled strategy, the study of the expected repaid and they did not put a promotion or marketing strategy. This technology is not for the use internal the bank but it is for the oust side consumers, so the aim is not to buy a technology but to use it in an economical way (A2). ”

“The individuals do not keen towards the use of the Internet banking, it is related to the banks and its administration. Secondly the development in the society did not reach the level, which rehabilitates the individuals, and persuade them to use this technology. The cultural and educational level and the ability to use the Internet effect. Also we can't forget the youth they use the Internet frequently but they are outside the business world because they might be students or limit income. We should know the average of using the computer in the busyness sector and the average of the computers in the homes then there might be a problem in the trust and privacy (A2). ”

“ We cannot say that the consumers in Jordan don't like the technology, but we can say they don't trust the technology. The weakness in the trust refers to the weakness of the local trust. Secondly the banks administrations do not educate the common people about the trust in technology (A2). ”

“The Jordanian consumers will accept and use this service; it's a matter of time. If a new elements offered such as a cheep access to the Internet, cheaper computers, more advantages for the consumers from the use of the Internet, offering good security programs, trustful and security. The most important issue is to literate the consumer. So the bank's administrations should literate them especially the business society. Actually it needs a lot of time until we reach the digital culture (A2). I think there are some

cultural and social criteria more important than the technology criteria it self which make the consumers use or don't use the Internet Banking. Such as, education, the culture, the norms, values, the awareness and the understanding of this technology and the ability to use it is very important. I think the normal people prefer to deal with something physical in a direct way rather than some thing not touchable. The consumers still depend on the written documents in order to file it for future, even the fax paper is not confirmed officially until now. More over the law, which govern these issues is not clear, it is written but ineffective. Most of the consumers even the literate like to visit the bank and to deal with a human which means he believe in face-to-face deal (A2).”

7.2.3.2 Data Reduction and Display: Leximancer

As stated in Chapter Three Leximancer is a tool that can be used to automatically analyse the content of document collections and display the extracted concepts. This information is presented on a conceptual map as ranked concepts and the strengths of the relationships between them.

Note the following meaning of the Concept Maps:

- The brightness of a concept is related to its frequency (i.e. the brighter the concept, the more often it appears in the text).
- The brightness of links relate to how often the two connected concepts co-occur closely within the text.
- Nearness in the map indicates that two concepts appear in similar conceptual contexts (i.e. they co-occur with similar other concepts)

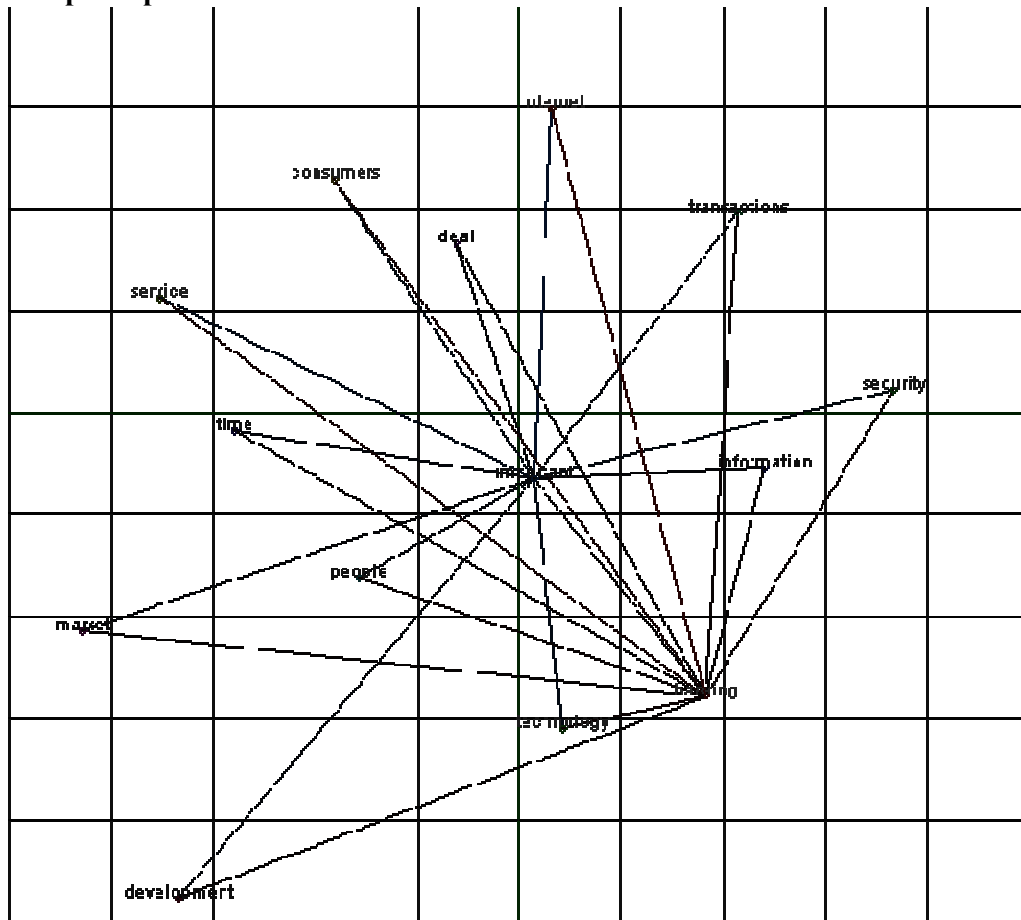
Note also in all analyses the following concepts were merged:

- Customers and consumers
- Internet and online
- Computers and technology
- Banks and banking
- All singulars and plurals

Each of the three groups of interview transcripts was run through Leximancer and the results are shown here as a concept map and tables showing the concept rankings and selected concept relationship strengths. For further explanation of the concept maps and tables refer to www.Leximancer.com.

Group One -Bank Mangers (BM)

Concept Map



Entities: Bank Managers (BM)

Concept	Absolute	Relative
<u>banking</u>	160	100%
<u>internet</u>	151	94.3%
<u>consumers</u>	76	47.5%
<u>service</u>	75	46.8%
<u>technology</u>	59	36.8%
<u>security</u>	36	22.5%
<u>transactions</u>	26	16.2%
<u>people</u>	24	15%
<u>important</u>	19	11.8%
<u>information</u>	18	11.2%
<u>time</u>	17	10.6%
<u>development</u>	15	9.3%
<u>market</u>	12	7.5%
<u>deal</u>	11	6.8%

Relationships: Important

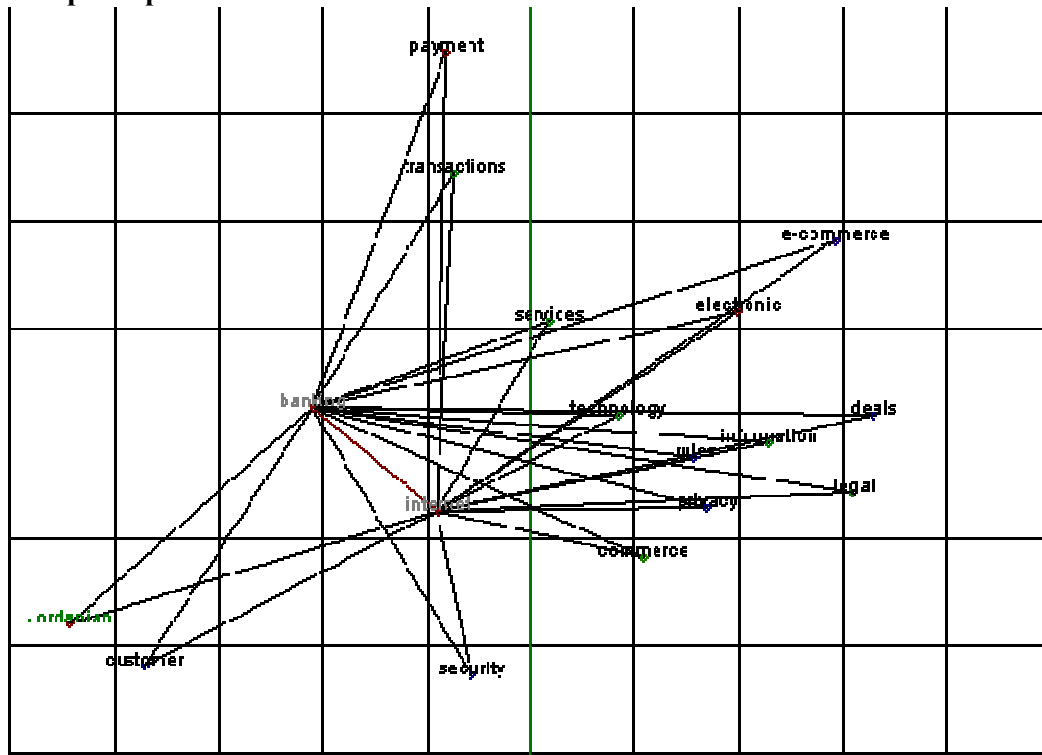
To	Absolute	Relative
<u>banking</u>	19	100%
<u>internet</u>	19	100%
<u>service</u>	11	57.8%
<u>technology</u>	10	52.6%
<u>consumers</u>	9	47.3%
<u>security</u>	8	42.1%
<u>transactions</u>	5	26.3%
<u>people</u>	5	26.3%
<u>time</u>	4	21%
<u>development</u>	3	15.7%
<u>market</u>	2	10.5%
<u>deal</u>	2	10.5%
<u>information</u>	2	10.5%

Relationships: Banking

TO	Absolute	Relative
<u>internet</u>	150	93.7%
<u>consumers</u>	76	47.5%
<u>service</u>	75	46.8%
<u>technology</u>	56	35%
<u>security</u>	36	22.5%
<u>transactions</u>	26	16.2%
<u>people</u>	24	15%
<u>important</u>	19	11.8%
<u>information</u>	18	11.2%
<u>time</u>	17	10.6%
<u>deal</u>	11	6.8%
<u>market</u>	10	6.2%
<u>development</u>	10	6.2%

Group Two -IT People (ITP)

Concept Map



Entities – IT People (ITP)

Concept	Absolute	Relative	
banking	45	100%	
internet	43	95.5%	
electronic	32	71.1%	
commercer	23	51.1%	
services	21	46.6%	
customer	16	35.5%	
technology	16	35.5%	
legal	15	33.3%	
transactions	14	31.1%	
security	13	28.8%	
information	12	26.6%	
e-commerce	9	20%	
Jordanian	9	20%	
deals	9	20%	
payment	8	17.7%	
rules	7	15.5%	
privacy	7	15.5%	

Relationship: Banks/Banking

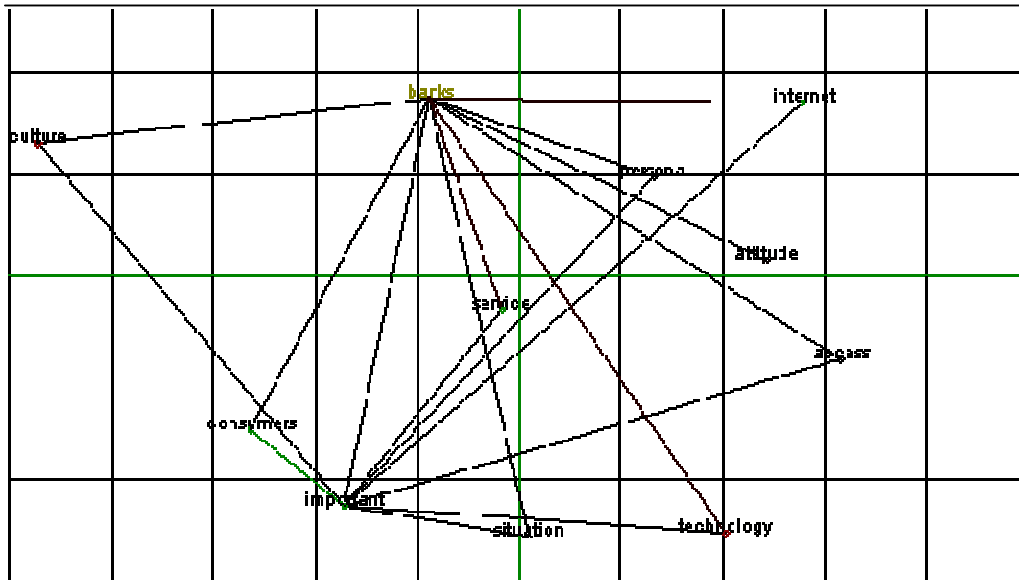
To	Absolute	Relative
<u>internet</u>	36	80%
<u>electronic</u>	17	37.7%
<u>customer</u>	16	35.5%
<u>services</u>	15	33.3%
<u>commerce</u>	14	31.1%
<u>transactions</u>	12	26.6%
<u>technology</u>	10	22.2%
<u>Jordanian</u>	9	20%
<u>security</u>	9	20%
<u>payment</u>	8	17.7%
<u>legal</u>	6	13.3%
<u>information</u>	5	11.1%
<u>e-commerce</u>	4	8.8%
<u>rules</u>	4	8.8%
<u>deals</u>	3	6.6%
<u>privacy</u>	3	6.6%

Relationship: Internet

To	Absolute	Relative
<u>banking</u>	36	83.7%
<u>electronic</u>	20	46.5%
<u>commerce</u>	17	39.5%
<u>services</u>	16	37.2%
<u>customer</u>	14	32.5%
<u>security</u>	13	30.2%
<u>technology</u>	12	27.9%
<u>legal</u>	10	23.2%
<u>information</u>	9	20.9%
<u>transactions</u>	9	20.9%
<u>Jordanian</u>	7	16.2%
<u>rules</u>	7	16.2%
<u>privacy</u>	6	13.9%
<u>e-commerce</u>	5	11.6%
<u>deals</u>	5	11.6%
<u>payment</u>	4	9.3%

Group Three –Academics (A)

Concept Map



Entities: Academic (A)

Concept	Absolute	Relative
<u>banks</u>	68	100%
<u>technology</u>	32	47%
<u>service</u>	30	44.1%
<u>internet</u>	29	42.6%
<u>consumers</u>	26	38.2%
<u>important</u>	11	16.1%
<u>situation</u>	9	13.2%
<u>access</u>	8	11.7%
<u>culture</u>	8	11.7%
<u>personal</u>	6	8.8%
<u>attitude</u>	5	7.3%

Relationship: Important

To	Absolute	Relative
<u>consumers</u>	11	100%
<u>banks</u>	11	100%
<u>technology</u>	7	63.6%
<u>service</u>	6	54.5%
<u>internet</u>	3	27.2%
<u>situation</u>	3	27.2%
<u>culture</u>	2	18.1%
<u>access</u>	1	9%
<u>personal</u>	1	9%

Relationship: Banks/Banking

To	Absolute	Relative
<u>technology</u>	32	47%
<u>service</u>	30	44.1%
<u>internet</u>	29	42.6%
<u>consumers</u>	26	38.2%
<u>important</u>	11	16.1%
<u>situation</u>	9	13.2%
<u>access</u>	8	11.7%
<u>culture</u>	8	11.7%
<u>personal</u>	6	8.8%
<u>attitude</u>	5	7.3%

CHAPTER 8. DISCUSSION

8.1 Introduction

In this chapter, the results of the data analysis from both the semi-structured interviews and the survey questionnaire presented in the previous chapter will be discussed. An interpretation of the findings will be derived from a synthesis of previous research with the quantitative and qualitative data obtained in this study. This will lead to a new understanding of the acceptance of new technology in the form of Internet banking in the financial sector of Jordan.

This research recognises that there are many factors that could affect the success and effectiveness of Internet banking in less-developed regions such as the Middle East. Some of these factors may not have been identified in the existing literature on IT adoption, as most of this research has been conducted in developed countries for which the technology was originally created. A preliminary review of the literature and an exploratory study in the Jordanian context, described in Chapter Two, suggests that the technology acceptance model, which is the basis of much of the research into IT diffusion, may be useful for a study undertaken in a developing country. However, it may need to be extended to include specific issues of culture and trust on the customer side and more basic elements of quality in technology usability and service on the side of the banks.

As indicated in Chapter One, the research problem that this study has taken up is the late adoption of individuals and organisations in Jordan of the Internet and its

applications with regards to Internet banking. Prior to the main study described in this thesis, some possible issues in this regards had been found in a preliminary investigation and already published by the candidate (Al-Sukkar and Hasan, 2005; 2004a,b). The main research question addressed in this thesis has involved the need to increase the understanding of the important factors that could influence the adoption and usage of Internet banking in Jordan. There is no study that explains the way these factors affect Internet banking adoption in Jordan.

The study was therefore undertaken with the primary aim of identifying, examining and providing an understanding of the factors of culture, trust and technology quality that could explain the attitude behaviour of using internet banking. This was done in order to provide solutions to the problem of under-utilisation, or lack of use, of Internet banking in Jordan as detected in the preliminary work by the candidate (Al-Sukkar and Hasan, 2005; 2004a, b). A model from IS/IT (TAM) was enhanced and intended to be used as a theoretical foundation to address these issues in the current research.

In the interpretation of the findings of this study causes, impacts and strategies are proposed that may lead to solutions that make this service more efficient and active in developing countries, especially in Jordan. Fast and growing acceptance of the Internet by individuals has prompted banks to invest heavily in Internet banking infrastructure, hoping to reduce the cost of routine transactions. Eventually, many banks hope to be able to accept consumer transactions applications via Internet, allowing individuals to perform banking activities such as transfers between accounts, balance inquiries, bill payments, and stop-payment requests. Some even offer online loan and credit card applications from anyplace and anytime, day or night, via the Internet. One benefit of

these activities is that they can be done even if the bank is closed. It is well understood that productivity gains can only be achieved if the bank customers adopt Internet banking. Unfortunately, Internet banking adoption has been slow in Jordan. After weighing the responses in the banking sector, it appears that only 7-15% of bank customers are using it (Shuqir, O., 2003, 2002; Al-Refaai, G. and Yassen, A., 2002), despite the fact that four banks are now offering the service.

The overall objective of the study is to use the results to assist with the adoption and use of Internet banking in Jordan. This research therefore has key implications for practice. As observed from this study, the majority of survey respondents have had no experience in using Internet banking. At the same time, Internet penetration has increased rapidly and local banks should look aggressively into the future and understand the trends and needs of customers. Therefore, banks should use the findings of this study to promote the benefits of Internet banking and establish a wider online customer base thereby eliminating the need to open new branches.

8.2 The Findings from the Survey

The results obtained from analysing demographic variables, frequency and percentage for each variables are listed according to survey categories. The following paragraphs describe these results.

- The percentage of males participating in the survey was (74.4%), which is higher than the percentage of females (25.6 %). This suggests more acceptance of the survey from males than females.

- Results show that the percentage of age group from 26-35 is the highest (45.3%), followed by both groups (36-45 and 18-25), which is equal to 24.9%; the age group 46 years and higher is 12.3%.
- The survey shows a high degree of correspondence from Bachelor degree holders (54.3%), which is approximately half of the sample. while 20.6% have a higher education degree, and the percent of people with a Diploma and lower is 25.1%.
- The data shows a high rate of low income (less than JD500) (63.7%), which is equal to two thirds of the population. 500-999 JD is equal to 22.4%, while the last category, higher than JD 1000 equal is to 13.9%.
- The data shows a high rate in the percentage of the private sector (67.6%), which is equal to two thirds of the population, while the public sector participant is equal to 32.3%.

The results obtained from analysing the population sample, frequency and percentage for each variable is listed according to survey categories. The following paragraph describes these results:

- The distribution of the sample population shows that the entire sample has bank account 100%, which helps the purpose of this study. The distribution of the sample population shows that all sample have the ability to obtain Internet service with 100%, which also helps the purpose of this study.
- The distribution of the sample population shows that most banks have a website, with 64.1%, which is equal to two thirds of the population, while the banks that don't have a website is equal to 1.8%. The rest of population have

some doubt whether the bank has a website or not with 34.1%, which shows that about two thirds of the sample didn't try to find out whether the bank has website or not.

- The distribution of the sample population shows an increase in the number of applicants who didn't know whether the bank provided internet banking or not, (50.9%) which is equal to half of the population. The percent of applicants who knew that their bank provided internet banking was equal to 37.2%, and the percent of applicants who didn't know that their bank provide the service is 11.9%. This shows that half of the sample didn't try to know whether the bank provided an Internet banking service or not.
- The sample shows an increase in the number of applicants who didn't use Internet banking with, 84.5%. The percent of applicants who use the service was 15.5%. This shows the weakness in adopting the Internet in a banking operation.
- Distribution of the sample shows an increase in the number of applicants who used a computer for the past ten years, with 85.5%; this is considered a high percentage, while the percent of applicants who used a computer for the past fifteen years was 14.5%. These results show the respondents have a good experience in using computer in the whole sample. The sample shows an increase in the percent of applicants who used the Internet for the past five years, with 81.4%. The percent of applicants who used the Internet for more than five years was 18.6%, which shows an intermediate experience in using the Internet.

8.2.1 The Results of Test for Research Hypothesis

The hypotheses of this research were postulated as a part of the task of providing solutions to the research question and the research problem for the study. These hypotheses were embedded in the research model in Figure 8.1. and Table 8.1. The analysis and results for the hypotheses were presented in Chapter Four.

This section interprets the hypotheses, discusses the findings from test results for each of the hypotheses tested and implications of the findings from Internet banking adaptation. The section ends with an overall conclusion from hypotheses tested in the study.

Twelve main hypotheses were tested and the results are summarised in Table 8.1. The first six hypotheses for the three external TAM variables (outside TAM) and the last six hypotheses for the inside of the TAM variables and the majority of the hypotheses have subhypotheses; all of them are supported, except H2. Also, all the external TAM main hypotheses have subhypotheses, some of them (H1₄: H1₅: H2₄: H3₂: H4₂: H5₁: H5₂: H5₃: H5₄: H6₁: H6₂: H6₃) were supported, and other subhypotheses (H1₁: H1₂: H1₃: H2₁: H2₂: H2₃: H2₅: H3₁: H4₁: H6₄) were not supported.

Table 8.1. Summary Results for the Research Hypothesis Test

Research Hypothesis	Results
H1: There will be a positive relationship between culture and the perceived usefulness; culture will be a positive influence on the perceived usefulness of Internet banking.	Supported
H1₁: There is a direct and positive effect relationship between uncertainty avoidance and the perceived usefulness of Internet banking.	Not supported
H1₂: There is a direct and positive effect relationship between power distance and the perceived usefulness of Internet banking.	Not supported
H1₃: There is a direct and positive effect relationship between masculinity/femininity and the perceived usefulness of Internet banking.	Not supported
H1₄: There is a direct and positive effect relationship between individualism/collectivism and the perceived usefulness of Internet banking.	Supported
H1₅: There is a direct and positive effect relationship between long- vs. short-term time orientation and the perceived usefulness of Internet banking.	Supported
H2: There will be a positive relationship between culture and the perceived ease of use.	Not Supported
H2₁: There is a direct and positive effect relationship between uncertainty avoidance and the perceived ease of use of Internet banking.	Not supported
H2₂: There is a direct and positive effect relationship between power distance and the perceived ease of use of Internet banking.	Not supported
H2₃: There is a direct and positive effect relationship between masculinity/femininity and the perceived ease of use of Internet banking.	Not supported
H2₄: There is a direct and positive effect relationship between individualism/collectivism and the perceived ease of use of Internet banking.	Supported
H2₅: There is a direct and positive effect relationship between long- vs. short-term time orientation and the perceived ease of use of Internet banking.	Not supported
H3: There will be a positive relationship between trust and the perceived usefulness.	Supported
H3₁: There will be a positive relationship between trust in the bank and the perceived usefulness.	Not supported
H3₂: There will be a positive relationship between trust in the electronic channel and the perceived usefulness.	Supported
H4: There will be a positive relationship between trust and the perceived ease of use.	Supported
H4₁: There will be a positive relationship between Trust in the bank and perceived ease of use.	Not supported
H4₂: There will be a positive relationship between trust in the electronic channel and the perceived ease of use.	Supported
H5: There will be a positive relationship between online service quality and the perceived usefulness.	Supported
H5₁: There will be a positive relationship between convenience/accuracy and the perceived usefulness.	Supported
H5₂: There will be a positive relationship between feedback/complaint management and the perceived usefulness.	Supported
H5₃: There will be a positive relationship between efficiency and the perceived usefulness.	Supported
H5₄: There will be a positive relationship between security/privacy and the perceived usefulness.	Supported
H6: There will be a positive relationship between online service quality and the perceived ease of use.	Supported
H6₁: There will be a positive relationship between convenience/accuracy and the perceived ease of use.	Supported
H6₂: There will be a positive relationship between feedback/complaint management and the perceived ease of use.	Supported
H6₃: There will be a positive relationship between efficiency and the perceived ease of use.	Supported
H6₄: There will be a positive relationship between security/privacy and the perceived ease of use.	Not supported

Continued Table 8.1 Summary Results for the Research Hypothesis Test

H7₁: There is a positive relationship between perceived usefulness and attitude toward using Internet banking.	Supported
H7₂: There is a positive relationship between perceived ease of use and attitude toward using Internet banking.	Supported
H8: There is a positive relationship between attitude and behavioral intentions to use Internet banking.	Supported
H9: There is a positive relationship between behavioral intentions and the actual use of Internet banking.	Supported
H10: There is a positive relationship between perceived ease of use and the perceived usefulness of Internet banking.	Supported
H11: There is a positive relationship between perceived usefulness and the behavioral intentions of Internet banking.	Supported

Table 8.2 Results of the Respondent’s Categorization of the Main Study (High & Low)

Variables	Mean	The Results
1. Culture		
▪ Uncertainty Avoidance (UA)	4.1794	High
▪ Power Distance (PD)	2.4630	Low
▪ Masculinity/Femininity (MF)	3.0650	High
▪ Individualism/Collectivism (IC)	3.7803	High
▪ Long- VS. Short-Term Time Orientation (LST)	3.0082	High
2. Trust		
▪ Trust in the Bank (TB)	3.7890	High
▪ Trust in the Electronic Channel (TE)	3.4543	High
3. Technology Quality		
▪ Convenience/Accuracy (CA)	3.5120	High
▪ Feedback/Complaint Management (FC)	3.6682	High
▪ Efficiency (EF)	3.7018	High
▪ Security/Privacy (SP)	2.8845	Neutral
4. Perceived Usefulness (PU)	3.8825	High
5. Perceived Ease of Use (PEOU)	4.0184	High
6. Attitude Toward Using (ATU)	4.1577	High
7. Behavioural Intention (BI)	3.7848	High
8. Actual Use (AU)	1.8450	Low

8.2.2 Findings Related to the Hypotheses and Respondents Categorizing

In this section of the study we will draw some general conclusions about the significant relationships regarding each of the external variables with TAM and the internal variables (TAM variables), as discussed in Chapter 3 and 4. Each variable will be discussed in turn.

8.2.2.1 The External Variables of TAM

Several studies assert that culture plays a significant role in IT diffusion (Hodgetts and Luthans, 1997; Burn, 1995; Ein-Dor, et al., 1993; Kedia and Bhagat, 1988; Hempel and Chang, 2002). Cultural beliefs are key independent variables in predicting the success or failure of technology acceptance (Straub, et al., 2001). This is due to the fact that the adoption and use of new technologies vary in different social and cultural contexts. Culture and technology are related; they are interdependent. The former determines the latter, which becomes a determining factor for networks of interaction in a society (Straub, et al., 2001). Also, culture is suggested to play an important role in explaining different patterns in Information Technology usage (Straub, 1994; Straub, et al. 1997). According to En Mao (2002) and (Palvia, P., 1998), they are interested in understanding the role that culture plays in IT acceptance, by conducting a study in a non-US culture. The specific constructs that can be affected by culture are normative beliefs and the subjective norm. As hypothesized, subjective norm is a significant determinant of user behavioral intention in a collective culture. According to Sherry M.B. Thatcher and William Foster (2004, 2003), the findings suggest that cultural factors do indeed influence adoption decisions. This finding is consistent with the exploratory work done by our research study.

Cultural factors are a significant point of difference between customers in the Middle East and those in the developed countries, and so it is important to study the cultural variables that foster and impede the adoption of new technology such as an Internet banking service. Cultural beliefs are key independent variables in predicting the success or failure of technology acceptance (Straub, et. al., 2001). This is due to the fact that the adoption and use of new technologies vary in different social and cultural contexts.

Culture and technology are related; they are interdependent. The former determines the latter, which becomes a determining factor of networks for interaction in a society (Straub, et al., 2001).

Researchers continually emphasize the importance of culture to the success of Information Technology (Ives and Jarvenpaa, 1991; Shore and Venkatachalam, 1995; Deans and Karwan, 1997; Palvia, 1998). Dasgupta, et al. (1999) conclude that organizational and environmental factors have a significant impact on Information Technology (IT) adoption decisions. Straub et al. (2001) study the influence of cultural beliefs and values on the inference of IT in the Arab world. They develop a cultural influence model of Information Technology Transfer (ITT) that presupposes the effect of culture, price attractiveness, top management support and required staff time on ITT. Surveys and interviews within the Arab cultural beliefs are very strong predictors of resistance to systems and to ITT.

Goodman and Green (1992) argue that cultural and political factors are the main explanations for the lack of IT diffusion in the Middle East. This is because the Western assumption that a free movement of information has positive connotations violates the cultural belief system of many Middle Eastern countries. The study, "The Role of Culture and IT policy in developing world, the case of Egypt and the Arab Culture" (2002) reveals that there is a relationship between Arabic culture and the policy of transferring of IT to some Arabic countries. The culture in this study was defined as beliefs and values.

TAM is influenced by a more general system of beliefs, such as cultural beliefs; this can be inferred from several recent studies outside the cross-cultural domain. For example, some works aim at integrating individual difference variables into TAM (Gefen and Straub, 1997; Agarwal and Prasad, 1997) was based on connections between the beliefs produced by a groups' common socialization experience and their attitudes towards IT. Similarly, Venkatesh and Davis (1996) show that an individual's perception of a system's ease of use was linked to their general 'computer self-efficacy'. Moreover, Chau (1996) shows that the concept of perceived usefulness encompasses both near-term and long-term usefulness in the minds of users, and that the latter had a positive impact on behavioural intentions to use a technology. In summary, this research concludes that national culture is a strong influence on IT, and that social values play a role in the acceptance of a technology system.

To better understand culture, Hofstede (1994) developed a framework recognizing five dimensions of culture: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, and long term versus short-term. Hofstede's work represents the largest study attempting to classify nations based on broad value differences. His work still has an impact today, and has been replicated and reviewed by many experts. The major motivation behind this classification framework is that it is able to establish, "the degree to which cultural environment systematically influences employees' attitudes and behavior" (Paik et al., 1996, p. 20).

1. The Culture dimension

In general, the combined culture dimension was found to have an affect on the extended model of technology acceptance, related to perceived usefulness; but not to perceived ease of use. The detailed relationships of cultural dimension are as follows.

Uncertainty Avoidance (UA)

The hypothesis involving the cultural dimension of uncertainty avoidance was not supported. Individuals from high uncertainty avoidance cultures were equally likely to be willing to innovate as were individuals from low uncertainty avoidance cultures. Although not significant, as some implications can be drawn similar to those discussed above with respect to finding alternate means of fostering perceptions of usefulness and ease of use in high uncertainty avoidance cultures.

Also, as show in Table 8.2, according to Hofstede 1980, there is a high Uncertainty Avoidance (UA). Accordingly, UA focuses on the level of tolerance for uncertainty and ambiguity within the society - i.e. unstructured situations. A high uncertainty avoidance ranking indicates that the country has a low tolerance for uncertainty and ambiguity. This creates a rule-oriented society that institutes laws, rules, regulations, and controls in order to reduce the amount of uncertainty.

Power Distance (PD)

The hypotheses involving power distance were not supported. Also, Table 8.2. shows a low Power Distance (PD). Accordingly, PD focuses on the degree of equality, or inequality, between people in the country's society. In Jordan, a low power distance

ranking indicates the society de-emphasizes the differences between citizen's power and wealth. In these societies, equality and opportunity for everyone is stressed.

Masculinity/Femininity (MF)

Masculinity/Femininity did not have any affect on the extended model of technology acceptance. The none-relationship proposed were significant implying that (at least for this sample) the acceptance and use of technologies does not depend on Masculinity/Femininity. One possible explanation for these non-significant findings may be due to the items measuring Masculinity/Femininity. Hofstede's (1980) four items measuring this dimension had good psychometric properties and were subjected to minimal rewording for this study. Upon closer examination of the items, it is evident that they are actually measuring gender differences. Hofstede made an inferential leap when he stated that these items measured work values that are typical of masculine and feminine cultures. Hofstede's items measured gender roles very well, but it is not clear how closely gender roles correspond to work values. The rationale for our hypothesis rested on the fact that masculine cultures placed greater importance on aggressive instrumental values than feminine cultures. Given that the items did not measure Masculinity/Femininity work values, it is possible to attribute the non-significant results of this dimension to the loose coupling between the theoretical rationale of our hypothesis and the operational testing; even though this corresponds to Hofstede's discussion of Masculinity/Femininity. Further work is needed to develop a better set of items to capture Masculinity/Femininity in terms of work values.

Also, Table 8.2. shows high Masculinity/Femininity. Accordingly, Masculinity focuses on the degree the society reinforces, or does not reinforce, the traditional masculine

work role model of male achievement, control, and power. A high masculinity ranking indicates the country experiences a high degree of gender differentiation. In these cultures, males dominate a significant portion of the society and power structure, with females being controlled by male domination.

Individualism/Collectivism

The hypotheses involving Individualism/Collectivism were supported. With respect to the transfer of technology, this implies that the social environment plays a more prominent role in technology adoption than in collectivist cultures.

Accordingly, Table 8.2. shows a high collectivism (low individualism) ranking; this typifies societies of a more collectivist nature with close ties between individuals. These cultures reinforce extended families and collectives where everyone takes responsibility for fellow members of their group. Collectivist/group orientation refers to the family, extended family, clan, labor union, organization, and, or culture. The "we" group is the source of identity, protection, loyalty, and a dependent relationship. People are integrated into strong, cohesive groups who protect them and demand loyalty throughout one's lifetime.

Long- VS. Short-Term Time Orientation

The hypotheses involving long- vs. short-term time orientation were supported. With respect to the transfer of technology, this implies that the social environment plays a more prominent role in technology adoption in short-term time orientation cultures.

Accordingly, Table 8.2. shows a high Long-Term Orientation (LTO). LTO focuses on the degree the society embraces, or does not embrace, long-term devotion to traditional,

forward thinking values. A high long-term orientation ranking indicates that the country prescribes to the values of long-term commitments and respect for tradition. This is thought to support a strong work ethic where long-term rewards are expected as a result of today's hard work. However, a business may take longer to develop in this society, particularly for an "outsider". This dimension is related to persistence and perseverance, status and order in positions, thrift, and a sense of shame. Its opposite, (short-term orientation) was characterized by personal steadiness and stability, protecting "face", respect for tradition, and reciprocity of greetings, favors and gifts.

2. Trust

Increased trust in technology leads to more effective utilization and rapid adoption of electronic equipment. The technology trust elements can have a profound affect on the speed and efficiency of technology adoption, use, and acceptance. The individual relies on Internet security and privacy systems for safeguarding personal information and protection from unauthorized use. While these systems focus on safety, security and privacy, infrastructures supporting predictability, reliability and utilization of technology, which are classified as technology trust, are underdeveloped, they all come from the bank sector.

a. Trust in the organization or institution.

Institution trust appears in trust in managerial competence and trust in an organization's support of information technology (Lewicki and Bunker, 1996; Tyler and Degoey, 1996). This dimension reflects the trust of both relevant others who might be users of technology with whom would offer interact using the information technology. (Lewicki and Bunker, 1996; Powell, 1996; Tyler and Degoey, 1996).

b. Trust in electronic channels (technology).

It is clear from the literature that very little is known about trust in technology. Reeves and Nash's (1996) research does suggest that human beings attribute human characteristics to technology. The implication is that human beings may view technology in relational terms (e.g., as a friend who is reliable, dependable, and trustworthy).

Trust in information systems technology is becoming more important to academics (Lippert, 2001b) and practitioners (Lippert, 2001c, 2001d) alike. The notion of technology trust (Lippert, 2001a, 2002) attempts to quantify what is meant by the user's trust in the inanimate information systems technologies – hardware and software – employed in daily life. Various organizations provide privacy assurance services including TRUSTe, BBBOnline, and Web Trust. Each of these assurance seals are designed to increase trust in privacy and security associated with commercial website applications. Some IS research has investigated commercial Internet trust symbols (Sivasailam, et. al., 2002) as dimensions of web assurance in business to individual (B2C) electronic commerce.

In general, the trust did have an affect on the extended model of technology acceptance especially with PU and PEOU. This affected trust in the electronic channel not trust in the bank.

Also, Table 8.2. shows that the *Trust in the Bank* in Jordanian is high. These means represent the respondents' evaluations of individual questions in the trust in the bank dimension. To determine the level of trust in the bank, as perceived by the respondents,

and in turn to test the current level, the grand mean for the six means was calculated as 3.79. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3), and less than the agreement point (+4), which means that there is only some perception of usefulness by the respondents in the sample. Thus, the mean (3.79) indicates that there is a perceived usefulness of Internet banking; we can infer that the customers' Trust in the Bank of using Internet banking is high. Moreover, the *Trust in the Electronic Channel* in Jordanian is high. These means represent the respondents' evaluations of individual questions in the *Trust in the Electronic Channel* dimension. To determine the level of *Trust in the Electronic Channel*, as perceived by the respondents, and in turn to test the current level, the grand mean for the seven means was calculated as 3.45. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3), and less than the agreement point (+4) which means that there is only some perception of usefulness by the respondents in the sample. Thus, the mean (3.45) indicates that there is a perceived usefulness of Internet banking; we can infer that the customers' *Trust in the Electronic Channel* of using Internet banking is High.

3. Technology Quality

The biggest challenge that faces a bank is to offer a certain level of quality that meets individual requirements (Schneider, et. al., 1997). Individual perception analysis of technology quality is a critical key to improving technology quality (Vriens and Harmen, 2000; Bahi and Nantel, 2000) within the banking sector, because it provides a good basis for understanding what the individuals need during the technology delivery process (Parasuraman, et al., 1985).

To survive in the highly competitive Internet banking industry, it is apparent that the banks need to provide customers with high quality services (Mefford, 1993). In so doing, bankers are first required to understand the attributes customers use to judge service quality. Then, steps need to be taken to monitor and enhance the service performance. Therefore, how to keep people continuing to use or visit Internet banking is the most important issue in the information age. Understanding more about the acceptance of the Internet banking service quality can lead to significant improvements in the design of both software and hardware to increase its usefulness and ease of use.

In general, the technology quality (Convenience/Accuracy, Feedback/Complaint Management, Efficiency and Security/Privacy) did have an affect on the extended model of technology acceptance, especially with PU and PEOU. But the Security/Privacy item is not significant with PEOU.

Also, Table 8.2. shows that Convenience/accuracy in Jordanian is high. These means represent the respondents' evaluations of individual questions in the Convenience/Accuracy dimension. To determine the level of Convenience/Accuracy of Internet banking, as perceived by the respondents, and in turn to test the current level, the grand mean for the two means was calculated as 3.51. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3) and less than the agreement point (+4), which means that there is only some perception of Convenience/Accuracy by the respondents in the sample. Thus, the mean (3.51) indicates that there is a perceived usefulness of Internet banking. Which done in this research can infer that the customers' Convenience/Accuracy of using Internet banking in Jordan is high.

Moreover, the Feedback/Complaint Management of Internet banking in Jordanian is high. These means represent the respondents' evaluations of individual questions in the Feedback/Complaint Management dimension. To determine the level of Feedback/Complaint Management of Internet banking, as perceived by the respondents, and in turn to test the current level, the grand mean for the two means was calculated as 3.67. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3) and less than the agreement point (+4), which means that there is only some perception of Feedback/Complaint Management by the respondents in the sample. Thus, the mean (3.67) indicates that there is a perceived usefulness of Internet banking. Which done in this research can infer that the customers' Feedback/Complaint Management of using Internet banking in Jordan is high.

Moreover, Efficiency of Internet banking in Jordanian is high. These means represent the respondents' evaluations of individual questions in the Efficiency dimension. To determine the level of Efficiency of Internet banking, as perceived by the respondents, and in turn to test the current level, the grand mean for the three means was calculated as 3.70. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3) and less than the agreement point (+4), which means that there is only some perception of Efficiency by the respondents in the sample. Thus, the mean (3.70) indicates that there is a Efficiency of Internet banking. Which done in this research can infer that the customers' Efficiency of using Internet banking in Jordan is high.

Finally, Security/Privacy of Internet banking in Jordanian is low. These means represent the respondents' evaluations of individual questions in the Security/Privacy dimension. To determine the level of Security/Privacy of Internet banking, as perceived by the respondents, and in turn to testing the current level, the grand mean for the two means was calculated as 2.88. When this mean was compared with the 5 point Likert scale, which was used, it was less than the neutrality (mid) point (+3). Thus, the mean (2.88) indicates that there is a Security/Privacy of Internet banking. Which done in this research can infer that the customers' Security/Privacy issue in using Internet banking in Jordan is low.

8.2.2.2 The Internal Variables (TAM variables)

- 1. The hypothesis (H7₁) that involves perceived usefulness with the attitude toward using were supported. And the hypothesis (H7₂) that involves perceived ease of use (PEOU) with the attitude toward using was supported.*

This study hypothesised that there would be a positive relationship between perceived usefulness and attitude toward using Internet banking (H7₁), and perceived ease of use and attitude toward the Internet banking (H7₂). This study found strong empirical support for hypotheses H7₁ and H7₂. This is consistent with the findings from previous studies on Internet banking. In addition, higher levels of perceived usefulness also resulted in a more positive attitude toward Internet banking. This finding is in accordance with previous empirical findings concerning the acceptance of new technologies; the significant relationship was identified. These results come with much previous research that has focused on the acceptance or use of new technology (Agawal and Prasad, 1999; Davis, 1993; Hu, et al., 1999; Moon and Kim, 2001, Al-Sukkar A.

and Hasan H., 2005; 2004a, b; Al-gahtani and King, 1999; Lu and Gustafsen, 1994; Moore and Benbasat, 1991; Venkatesh and Davis, 1996). It confirms the effect of the ease of use of attitude toward using IT/IS.

Chau (1996) explains that the relationship between perceived ease of use and attitude toward the technology is dependent upon the stage of technology diffusion or technology life cycle. In other words, in the early stage of diffusion, users need some skills to handle the technology. Hence perceived ease of use will show a positive relationship with the attitude toward the technology, or behavioural intention to use. However, stage users will have much less difficulty in using the technology. Accordingly, there will be no relationship, which seems to be a plausible explanation for the inconsistent results.

As many researchers have argued (Adams, et al., 1992; Chau, 1996; Davis, 1989; Keil, et. al., 1995), perceived ease of use may not be an important variable for explaining user acceptance of technology. But, there are some factors that have an influence on the relationship between perceived ease of use and attitude or behavioural intention. Those factors encompass technology characteristics (technology quality, technology life cycle, and technology category) and user characteristics (trust, and culture). Therefore, this study indicates that a more sophisticated theoretical framework that reflects broad influential factors including technology characteristics and user characteristics should guide the study of technology acceptance.

2. The hypothesis (H8) that involves there would be a positive relationship between perceived usefulness (PU) and perceived ease of use (PEOU) was supported.

PU and PEOU have been studied as key determinants of technology acceptance and usage (Davis, 1989; Adams et al., 1992; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000). Previous research has shown that PU is an important direct determinant of technology acceptance. However, research on the direct effects of PEOU on technology acceptance has produced mixed results. It was suggested that PEOU would influence technology acceptance through PU. The current study also revealed that there was a positive relationship between perceived usefulness and perceived ease of use; PEOU is strongly related to PU. Previous studies have reported results, including a positive relationship (Agawal and Prasad, 1999; Chau, 1996; Venkatesh and Davis, 2000, Al-Sukkar A. and Hasan H., 2004; 2004a, b). In other words IT is more useful and easy to use (Davis, 1989; Davis et al., 1992).

Table 8.2 shows that the perceived usefulness of Internet banking in Jordan is high. These means represent the respondents' evaluations of individual questions in the usefulness dimension. To determine the level of usefulness of Internet banking, as perceived by the respondents, and in turn to test the current level, the grand mean for the ten means was calculated as 3.88. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3) and less than the agreement point (+4), which means that there is only some perception of usefulness by the respondents in the sample. Thus, the mean (3.88) indicates that there is a perceived usefulness of Internet banking. Which done for this research can infer

that the customers' perceived usefulness of using Internet banking is high. Moreover, Perceived ease of use of Internet banking in Jordanian is high. This was tested by using the scores of five statements in the survey, which constituted the composite index (scale) used in measuring the perceived ease of using Internet banking. The arithmetic means for the five scores of the responses were used for this purpose. Initially, the arithmetic means for the scores of responses on the five statements were calculated. To determine the level of ease in using Internet banking by the respondents, and in turn, to test the grand arithmetic mean was calculated to be 4.01. This represents the level of the customers' perceived ease of use of Internet banking. When this mean was compared with the 5-point Likert Scale used, it was found that it is greater than the agreement point (+4), which means the perceived ease of use of Internet banking is high.

The measures of the cognitive dimension were perceived usefulness, which is defined as the degree to which a user believes that using a particular Web site would increase job performance; and perceived ease of use, which is defined as the degree to which a user believes that using a particular Web site would be free of physical and mental effort.

3. The hypotheses (H9) that involves there would be a positive relationship between perceived usefulness (PU) with behavioural intention (BI) was supported.

This hypothesis examines cognitive beliefs (Perceived Usefulness) and influences one's behavioural intention to continue using Internet banking. The results suggest that users'

continuance intention is determined by their perceived usefulness of continued Internet banking use. User Perceived usefulness, in turn, is influenced by their confirmation of expectation from prior internet banking use and perceived usefulness; Internet banking acceptance perceived usefulness is influenced by users' confirmation level. In other words, this research indicates that perceived usefulness is a major determinant and predictor of behavioural intentions to use the Internet applications such as Internet banking. Also, the results indicate Davis is correct in proposing that the indirect relationship between perceived ease of use and intention to use, mediated by perceived usefulness, is an important one.

4. The hypotheses (H10), which involved attitude toward using (ATU) with behavioural intention (BI) was supported.

This study revealed a significant, positive relationship between the attitude toward the Internet banking and behavioural intention. This finding is in accordance with previous empirical findings concerning advertising, web site effectiveness, Internet banking acceptance and user acceptance of technology (Agawal and Prasad, 1999; Bruner and Kumar, 2000; Choi, 2000; Choi, *et al.*, 2001; Davis, 1993; Gefen and Straub, 2000; Hu, *et al.*, 1999; Moon and Kim, 2001; Stevenson, *et al.*, 2000, Al-Sukkar A. and Hasan H., 2005; 2004a,b). This study indicates that respondents intend to behavioural Internet banking when they have more favourable attitude toward it.

Moreover, attitude toward using Internet banking in Jordanian is high. This has been found through the responses to four statements of the survey constituted in the composite index (scale) used in measuring the respondents' attitudes toward the use of

Internet banking. The arithmetic means for the scores of all responses on each of the four statements were calculated as four means on each statement. Initially, the arithmetic mean for the scores of responses on each of the four individual statements was calculated. Then the grand mean of the four scores was calculated to be 4.16. When this figure was compared with the 5-points scale, it was found that it is greater than the agreement point (+4). This means that the customers' attitudes toward the use of Internet banking are mainly high. Also, behavioural intention to use Internet banking in Jordanian is high. This issue suggests that the customers' of banks in Jordan have intentions to use Internet banking. This issue has been tested through the responses from three statements in the survey, which constituted the composite index (scale) used in measuring the respondents' intentions to use Internet banking. The arithmetic means for the scores of the responses on the statements were calculated. To determine the level of the respondents intention to use Internet banking as perceived by the respondents, and in turn to test the hypothesis, the grand arithmetic mean was calculated to be 3.78. This represents the level of perceived ease of use of Internet banking. When this mean was compared with the 5-points Likert Scale used, it was found that it is greater than the agreement point (+4), which means the behavioural intentions to use Internet banking is high.

5. The hypotheses (H11), which involves the attitude toward using the technology and behavioural intention (BI) with the actual use (AU) was supported.

Actual use of Internet banking in Jordan is low. This issue suggests that the bank customers in Jordan have no actual use for Internet banking. This issue has been tested

through the responses on two statements in the survey (have you used internet banking or not?). The arithmetic percentage for the scores of the responses on the statements were calculated who from those used Internet banking or not. To determine the level of the respondents, the actual use of Internet banking as perceived by the respondents, and in turn, to test this issue, the arithmetic percentage was calculated to be 84.5% did not used and 15.5% did use this service, which means that the actual use of Internet banking in Jordan is very low.

Accordingly, the main reason for this comes from the majority of the Jordanian people: They are not using computers and/or the Internet. They are still afraid and/or they haven't the neigh knowledge about these issues. The high and low cultural dimension (Uncertainty Avoidance, Power Distance, Masculinity/Femininity, Individualism/Collectivism, Long- VS. Short-Term Time Orientation) and Security/Privacy maybe play the effect to actual use of Internet banking in Jordan as discussed above.

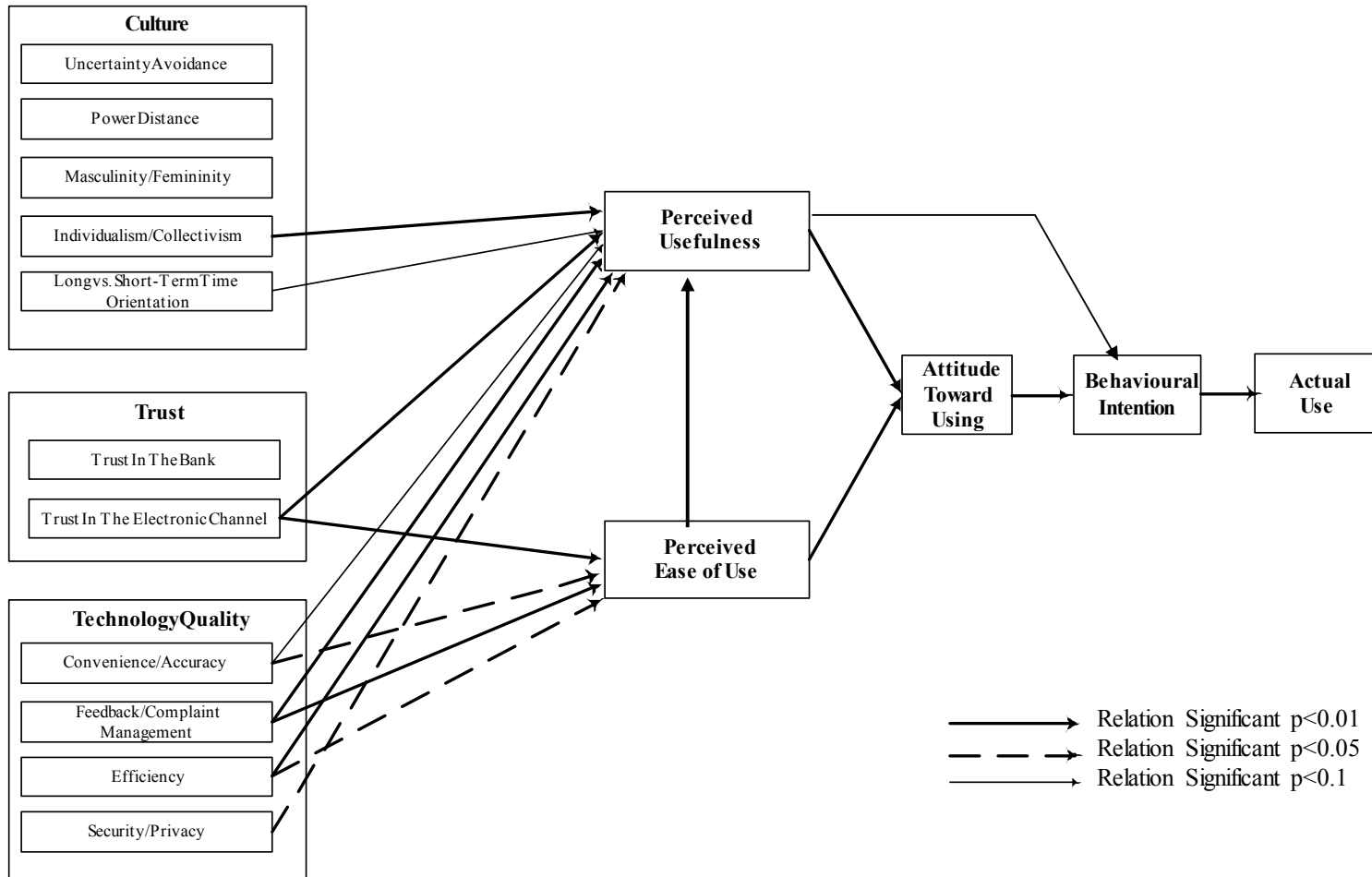
Security has been widely recognized as one of the main obstacles in the adoption of Internet banking. Many studies suggest that banks must first convince their customers that Internet banking and transactions are secure before they are use Internet banking. Security is a very important aspect in the debate over the challenges facing Internet banking. Further, it has been stated in numerous studies that the greatest challenge to the Internet banking sector will be winning the trust of the consumer in issues of security and confidentiality (see Runge and Zimmermann, 1997; Furnell and Karweni, 1999; Bestavros, 2000). Adam et al. (1999, 123) claim that ensuring security and confidentiality are fundamental prerequisites before any commercial activities involving

sensitive information can take place. They add that security is the leading barrier to widespread Internet business on the Internet. The rapid developments in technology have made significant contributions to securing the Internet for Internet business. However, the challenges remain in this area, and security remains a substantial issue for the development of Internet businesses, especially Internet banking.

In the Internet banking sector, the banks and other financial institutions need to store sensitive data on their customers (Bestavros, 2000). However, empirical studies have found that, “consumers are often reluctant to share personal information for fear that their financial life will become an open book to the Internet universe” (Bestavros, 2000; Bhimani, 1996; Furnell and Karweni, 1999). However, the security technology is already available and in use. The question to be addressed today is simply: how to convince consumers of the security of the Internet? For example, Gesner (1996) argues that security is becoming a non-issue as the answers to the security and confidentiality problems are found. He continues that there are three main developments taking place in the area. First, Web browsers are incorporating 128-bit RSA encryption key technology that allows customer information and requests to remain private as the data flows across the Internet. Second, the use of digital certificates has made identification easier and cheaper. Third, firewalls ensure that, “bad guys can’t gain unauthorized access to both customer information and backoffice systems are improving daily.” (Gesner, 1996). Regarding improvements in Web technology, Gesner (1996) argues that the Internet will soon be the most secure way of doing business. The education of the customer is of key importance. Hence, nobody will benefit if customers do not trust the banks in delivering security.

It is suggested by Lin and Lu (2000), that one way to reduce the security concern is to cultivate brand equity. Brand equity appears to play a major role in consumer decision-making about products and bank services and so by enhancing brand equity, marketers will move consumers online. According to Furnell and Karweni (1999), awareness is the key in increasing consumer confidence. Security issues remain the number one challenge to Internet banking service providers. They must win the customer's trust - through education and marketing strategies. Service providers on the Internet have made major developments, for example, in the methods of payment available via the Internet.

Figure 8.1 Significant Relationships in the Regression Model



8.2.2.3 The Results from the Stepwise Regression

What findings of the study in Jordan can be used to improve the acceptance of information technology in general and Internet Banking in particular in developing countries?

In order to answer this research question, stepwise multiple regressions were used to determine the best model of Internet banking utilization in Jordan. According to the advised from the statistical consulting at the university of Wollongong about the stepwise multiple regressions and the best model. Descriptive statistics was used to summaries the demographic variables of respondents, and to provide a guide for conducting multivariate analysis; see Table 8.3, 8.4 and 8.5, and Figure 8.2.

Table8.3 Stepwise Analysis - a Dependent Variable: PU

Variables Entered (In order)	From Construct	Standardized Coefficients (Beta)	t	Sig.
4-UA2	Culture (Uncertainty Avoidance)	.116	2.843	.005 ***
6-MF3	Culture (Masculinity/Femininity)	.117	2.866	.004 ***
7-IC1	Culture Individualism/Collectivism)	.105	2.598	.010 ***
3-TE1	Trust (Trust in the Electronic Channel)	.164	3.761	.000 ***
8 -TE4	Trust (Trust in the Electronic Channel)	.125	2.776	.006 ***
5-EF1	Technology Quality (Efficiency)	.130	2.757	.006 ***
1- EF2	Technology Quality (Efficiency)	.134	2.705	.007 ***
2- FC1	Technology Quality (Feedback/Complaint Management)	.160	3.303	.001 ***
Equation				
R	0.554			
R²	0.307			
F	24.227 Sig. F= 0 .000 ***			

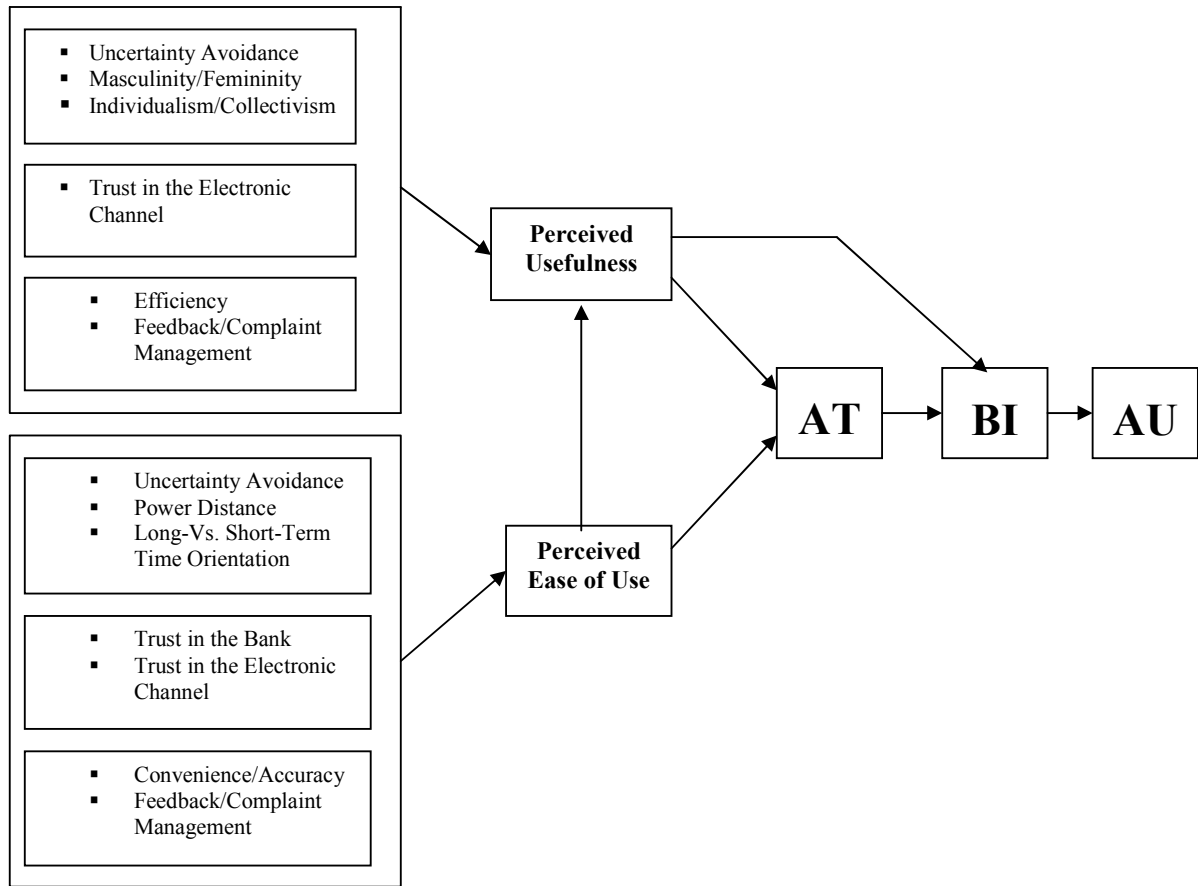
Table 8.4 Stepwise Analysis - a Dependent Variable: PEOU

Variables Entered (In order)	From Construct	Standardized Coefficients (Beta)	t	Sig.
8- UA5	Culture (Uncertainty Avoidance)	-.087	-2.023	.044**
3-UA1	Culture (Uncertainty Avoidance)	.126	2.946	.003 ***
5-PD6	Culture (Power Distance)	-.080	-1.900	.058**
7- LST1	Culture (Long Vs. Short-Term Time Orientation)	.091	2.157	.032**
6- TB3	Trust (Trust in the Bank)	.102	2.296	.022**
2-TE1	Trust (Trust in the Electronic Channel)	.148	3.315	.001 ***
1- CA3	Technology Quality (Convenience/Accuracy)	.219	4.131	.000***
4-FC1	Technology Quality (Feedback/Complaint Management)	.147	2.850	.005 ***
Equation				
R	0.491			
R²	0.241			
F	17.382 Sig. F= 0 .000***			

Table 8.5 Stepwise Analysis- a Dependent Variable: ATU

Variables Entered (in order)	From Construct	Standardized Coefficients (Beta)	t	Sig.
3- PU3	Perceived Usefulness	.167	3.315	.001 ***
1- PU10	Perceived Usefulness	.261	5.140	.000 ***
2- PEOU3	Perceived Ease of Use	.341	8.325	.000 ***
Equation				
R	0.613			
R²	0.376			
F	88.749 Sig. F= 0 .000***			

Figure 8.2 The Best Model of Significant Relationships in Stepwise Regression



8.3 The Findings from the Semi-structured Interviews

8.3.1 Bank Mangers

From the Leximancer content analysis of the transcripts of the interviews with the bank managers, prominence was given as expected to the concepts of *banking* and the *Internet*, which were the main topics of the interviews. Following these in ranking was the concept of *customers/consumers*, which is close to those of *service* and the *Internet/Online* in the concept map and these are all far from the concepts of *technology* and *banking*. However the most significant relationships of the concept *important* are to the concepts of *banking* and the *Internet* (presumably because they are the topic of discussion) and then to *customers/consumers*, *service* and *technology*.

From a direct interpretation of the quotes selected from the interviews it was clear that customer service was a priority with bank manager with an assumption that customers would have a primary concern with security of Internet transactions. They acknowledge the importance of Internet banking to the future of their organisation and the Jordanian banking industry in general. They had issues of deficiencies in national infrastructure and government involvement through regulations etc. They confirmed the notion that the aim of today's bank marketing is to ensure that the new delivery channels are perceived as an easy, fast and convenient way to access bank accounts.

8.3.2 IT People

Following *banking* and the *Internet* (the topic of discussion) and the concepts with prominent rankings on the Leximancer analysis of interview with IT people are *electronic*, *commerce/business service*, *customers/consumers*, *service* and *technology*. However the concept of *customers/consumers* is on the opposite side of the map from all those more technically oriented indicating that they are not close to customer

needs. Interpretation of the interview confirm that they are concerned with technical quality issues and levels of consumer computer literacy.

8.3.3 Academics

In the Leximancer analysis of the interviews with Academics the concepts of *culture* and *attitude* are present but not high on the ranking list. *Culture* is seen as closely related to the concept of *importance* but not *attitude* although the concept of *culture* is on the far side of the map from all others whereas *attitude* is close to practical concepts of the *Internet, service, access* etc.

Personal interpretation of the quotes selected from the interviews present an emphasis on the importance of the concept of trust. They also mention the issues of user attitudes and feelings of satisfaction with the service. They suspect that there is not a broad awareness of the benefits of Internet banking among consumers, as issue that will now be discussed.

8. 4 General Discussion

The overall experience of this research confirms that Internet banking offers new value to customers that is still to be appreciated. It makes available a full range of services including some services not offered at branches. The greatest benefit of Internet banking is that it is cheap or even free to customers. Internet banking in general is not tied to time or place. The range of transactions available is fairly broad. Consumers can do everything from simply checking on an account balance to applying for a mortgage. It has also been argued that Internet banks are more likely to change in response to customers' demands (Brogdon, 1999). Internet banking has the advantage that the customer avoids travelling to and from a bank branch. In this way,

Internet banking saves time and money, provides convenience and accessibility, Transactions are executed and confirmed almost instantaneously and so Internet banking has a positive impact on customer satisfaction. Customers can manage their banking affairs whenever they want, and they can enjoy more privacy while interacting with their bank. It has been claimed that Internet banking offers customers more benefits at lower costs (Mols, 1998). To summarise, Internet banking in general and Internet banking in particular offer many benefits to both service providers (whether they are traditional banks or other financial institutions does not make a difference) and their customers.

Internet banking offers many benefits to banks and their customers. The main benefits to banks are cost savings, Facilitating the offering of more services, reaching new segments of the population, Transparent and fast response, 24 hours / 7 days weekly client servicing for general services, efficiency, enhancement of the bank's reputation and better customer service and satisfaction (Brogdon, 1999; Jayawardhena and Foley, 2000). The more transactions can be converted online, the more money will be saved. According to Robinson (2000), the cost of an Internet transaction is dramatically less when done online compared to at a branch. He adds that online banking strengthens the relationship between the service provider (e.g. bank) and the customer, because it brings banking services directly to a customer's home or office, or in the mobile phone. This creates customer loyalty. The last point he made was that online services are necessary for banks that have to compete with a growing number of services from other financial institutions, investment concerns, and insurance companies.

The findings of this study imply that users are very concerned about security and majority of them are using Internet banking for accounts enquiry only. Therefore, banks should ensure that safety measures such as firewalls, intrusion detection and other related security are properly developed and enforced properly. As for the perceived risk or security, O' Connell (1996) and Daniel (1999) discovered that security concern is an important affecting acceptance and adoption of new technology or innovation. Sathye (1999) confirmed security concerns is a burning issue for financial transactions done over the Internet.

On the legislative side, the government has developed information technology (IT) governance to further protect the users to obtain assurance and security and controls of IT services provided by internal or third parties. Therefore, banks should emphasize usefulness of Internet banking systems and in line with the government's effort to develop IT applications in government, business and industry.

With increasingly tech-savvy and IT talented customers who are perceived to be more demanding and discerning of IT, banks have to make their sites customer friendly and provide a range of services for one-stop banking. Thus, this will also increase the perceived usefulness of Internet banking that lead to higher intention to use Internet banking system. In this regard, banks will probably be able to increase fee revenue from services like online bill payment and profits from collections of credit cards, home loans, insurance and online share trading.

CHAPTER 9. CONCLUSION

9.1 Introduction

Information system and technology acceptance issues have been the subject of extensive research. More recent studies have focussed on developing theory-based models, which are tested, validated, and compared. Among the models proposed and studied, the Technology Acceptance Model (TAM) (Davis, 1986, 1989) is widely accepted and is based on the Theory of Reasoned Action (TRA). In the TAM, “perceived usefulness” and “perceived ease of use” are hypothesised as key determinants of usage through two mediating variables, user attitude and actual intention to use. As discussed in Chapters Four and Five, the TAM model has been tested extensively, (Adams, et al. 1992; Chau, 1996; Chin and Todd, 1995; Davis and Venkatesh, 1995; Segars and Grover, 1993; Taylor and Todd, 1995) and the main constructs of the model have been found to be reliable and valid. In addition, many studies proposed extensions and modifications for example, adding constructs and variables, such as culture, trust and technology quality as external variables, to TAM. These extensions and modifications were based on the theory of reasoned action (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975), the Theory of Planned Action (TPA) (Ajzen and Madden, 1986), Innovation Diffusion Theory (IDT) (Rogers, 1995; 1983), and Davis’s own empirical results. However, most of the existing studies were conducted in developed countries such as the USA where it was created. Studies where TAM was tested in other countries, for example, Switzerland, (Straub, et al., 1997), Japan (Straub 1994; Straub, et al. 1997), Arabic countries (Rose and Straub, 1998), and Hong Kong (Hu, et al., 1999), gave varying results of TAM’s predictive power. It is probable therefore, that national culture and the quality of the technological systems play an important role in explaining these differing

patterns in IT usage (Straub, 1994; Straub, et al., 1997). Existing studies have not established clear relationships between external variables, such as culture, trust and system quality, and IT acceptance and adoption. The aim of this research was to increase understanding of the effect of culture, trust and technology quality on aspects of IT diffusion in developing countries. Although 8 of the 10 “culture” hypotheses were not supported, it is thought that national culture plays an important role in explaining these differing patterns of IT usage, the search for perceptible and measurable culture variables should be made in future research.

This concluding chapter of the thesis reflects on the findings of the following research objectives as stated in Chapter One. These objectives were to:

1. Investigate the adoption and use of the Internet for banking transactions by individuals and organisations in Jordan (as an example of a developing country).
2. Identify the perceived problems that individuals and organisations in Jordan encounter while adopting or using these new technologies.
3. Quantify constructs concerning the current state of consumer beliefs and attitudes toward Internet banking in Jordan, and develop and validate the relationships between the factors that drive the adoption and acceptance of such services.
4. Outline strategies, which propose opportunities for individuals and organisations to uncover unseen problems, thereby improving the use and acceptance of Internet banking.

9.2 Findings Related to the Research Questions

This research aims to contribute to the knowledge about Internet banking in Jordan. This will be achieved by addressing the broader questions relating to factors affecting technology acceptance in developing countries. This research deals with the relationships between culture and trust on the consumer side, and service and technology quality on banking side. The research also investigates attitudes to Internet banking and the actual usage of the Internet delivery channels. The findings from the analysis of data of both the semi-structure interviews and the survey questionnaire will now be discussed in relation to each of the research questions identified in Chapter One.

9.2.1 Research Question 1:

What factors influence the adoption by banks, acceptance by customers and usage of Internet banking in Jordan? What is the relative importance of these factors and the relationship between them?

This research recognises that there are many factors that could affect the success and effectiveness of Internet banking in Jordan. The finding of the interviews from the exploratory study on Internet banking in Jordan, together with an examination of the literature and an empirical study in the Jordanian context suggests that an extension of the Technology Acceptance Models include two sets of factors. One set from the consumer side and one set from the banking side, which relate to the two main determinants of attitude and behaviour in the use of this technology. The extension includes specific issues such as social and technology issues. More specifically, the

issues of culture and trust on the customer side, and elements of quality in technology usability and service on the bank side.

The results of the main study have revealed that decision-makers in the banks have realised that Internet banking is a risky but essential step to remain competitive in a growing, global market place. Decision-makers in the banks are all planning to adopt or expand services through the Internet but are concerned about factors that relate to the perceived ease-of-use, and perceived usefulness of the technology. These are components of the TAM model. There is however confusion, relating to how features of the technology may be improved to make it easier to understand and operate in the Jordanian context. This requires new operating environments to be as intuitively appealing to Arabic knowledge workers, as they are to knowledge workers in developed countries. There is a perceived need to compare the use of computer applications to the existing manual tools currently used for accomplishing the same tasks in their unique situation. This will assist workers to see the usefulness of computers and Internet systems.

The results from the quantitative analysis of the survey responses confirmed all the relationships in the traditional TAM, as well as the importance of trust in the technology and issues relating to its quality. 'Perceived usefulness' was confirmed as providing a diagnostic insight into how user attitudes toward using, and intention to use, are influenced. Perceived usefulness also has a direct effect on 'intention to use' over and above its influence via attitude. 'Perceived ease of use' was also shown to be another major determinant of attitude toward use in other TAM studies.

The relationships of culture in general and most of the various cultural constructs tested in the quantitative study were not clearly confirmed. Neither were they significant concepts detected in the qualitative analysis of the interviews. However, they were not discounted entirely, and it is probable that these are much more complex than anticipated in the design of this research. It is suggested that these factors could be the most important and the fact that they did not clearly emerge from this comprehensive study may be indicative of part of the problem. In other words, it may be that if those involved in technology introduction paid more attention to cultural differences and issues of trust, they may find more effective ways to introduce the technology with greater acceptance by consumers in Jordan.

9.2.2 Research Question 2

How can the traditional Technology Acceptance Model be used to study these factors in the environment of developing countries? What is the role of social influence (culture and trust), and technology quality characteristics in the acceptance of technology?

There are many factors that could affect the success and effectiveness of Internet banking in Jordan, and be used as external variable to augment TAM. Those chosen for this study, based on exploratory research, were issues of culture and trust on the customer side, and elements of quality in technology usability and service on the bank side. The results of this research confirm the main TAM relationships but this may not be of much use without the moderating external variables that adapt it for use in diverse environments. This study has gone some way in examining these variables, however, further research is needed. It may be that culture cannot be so explicitly determined and

therefore, an empirical device such as TAM may have limited practical application in guiding technology transfer to developing countries. It may also be that a complex mix of culture, economic conditions and technical maturity needs to be understood in a more interpretive manner.

9.2.3 Research Question 3

How can the findings of this study be used to benefit the banking sector in Jordan and other Middle Eastern countries in similar circumstances?

The results of the study has revealed that decision-makers in the banks have realised that Internet banking is a risky but essential step to remain competitive in a growing, global market place. They are all planning to adopt or expand services through the Internet. However, they are concerned with factors that relate to the perceived ease-of-use, and perceived usefulness, which are components of the TAM model. There is however confusion concerning how to improve the features of the computer in order to make it easier to understand and operate in the Jordanian context. The decision-makers require new operating environments to be as intuitively appealing to Arabic knowledge workers, as they are to those in developed countries. There is a perceived need to compare the use of computer applications to existing manual tools for accomplishing the same tasks in their unique situation. It is perceived that this will help users see the usefulness of computers and Internet systems for banking transactions. The results of the survey reveal the importance of ensuring not only that the technological systems are of high quality but also that consumers trust that this is so. It is the need to manage this perception that is a significant finding from this research and this finding is one that has cultural implications.

9.2.4 Research Question 4

What findings from the study in Jordan can be used to improve the acceptance of information technology in general, and Internet Banking in particular, in developing countries?

The findings from this study on Internet Banking in Jordan could well be indicative of issues involved in the adoption of many new technologies in Jordan and other developing countries. These technologies are extremely important to enable such countries to become a part of the global economy, and thereby achieve strong economic growth. Without a significant uptake of the Internet technology a country or region may suffer severe inefficiencies in the operation of both business and government organisations. This may lead to consequences for the whole country. One such consequence may be becoming isolated from a large section of the world market for their goods and services.

9.3 Practical Implications of the research

The implications of these findings and conclusions are that, banks need to play a leading role in influencing the perceptions, and thereby the attitudes and behaviour of current and potential Internet banking users. The outcome of this study has two practical implications for banks and other organisations venturing into e-commerce in Jordan and similar developing countries. First, the study provides a general guide on user behaviour, for information system managers in organisations before they make major investments in new technology. Reasons people resist the adoption of new technology have been related to their attitudes toward the technology, past experiences with the technology, poor system design, and lack of system usefulness as it applies to accomplishing task in their organisation. In addition to the above, this research study

also points to the importance of considering issues of culture, trust and perceptions of technical quality in IT adoption in developing countries. This is particularly relevant to technology that has been developed in and for organisations of developing countries.

Second, this study serves as a tool for understanding user acceptance of Internet applications such as Internet banking technology. More specifically, the research has produced a validated instrument to measure the acceptance of the Internet banking applications currently in place. The findings have implications for anticipating future user problems and determining ways to improve user acceptance and usage, as well as determining why the technology is being used or why it is not being used.

This study recognized that Internet banking could reduce consumers' banking costs and offer further competitive advantage to banks. However, respondents stated that Internet banking is unimportant if it does not offer money transmission services.

9.4 Academic Contributions of the Study

This study makes significant contributions across all areas of IT adoption and usage research and practice. These contributions relate to six main areas:

- (1) the development of a conceptual model that explains and predicts the factors that influence the adoption and usage/acceptance of the information technology/system of the Internet; and its application regarding the new technology in the bank sector in Jordan, such as Internet banking;
- (2) the empirical support for proposed hypotheses based on the integrative research framework and the literature;

- (3) the adopt and development of a new survey instrument;
- (4) the use of a mixed method approach to the main study using both quantitative and qualitative data;
- (5) its potential to be generalised to a nation-wide general organisational study and;
- (6) the benefits combining an exploratory approach, followed by an empirical confirmatory analysis in a rigorous research methodology for IT adoption and usage.

Based on the results and finding, the original technology acceptance model depicted in Figure 4.1 is modified to include variables of culture, trust and technical quality as shown in Figure 8.1. It is suggested that Figure 8.1 could be used as a research model for further study on IT adoption.

9.5 Generalisability of the Results

Generalising the findings of a study such as this should be carried out with caution despite the significant contribution it makes to the topic area., This study was quite specific in its choice of site. It was conducted in one country, Jordan, and examined only one type of Internet application,, Internet banking. It is therefore lacking any comparison or control group. The findings of this study are not necessarily applicable to other Arab or developing country settings using other types of information technology. However, there is some justification for claiming that Jordan has much in common with other developing countries and Internet banking can represent the wider collection of Internet applications. Further research on the variables investigated in this study and their relationship in other settings may sharpen the understanding.

9.6 Limitations of the Research

There were several limitations of the research methods used in this study as follows.

First, the current study adopted a cross-sectional design, which was conducted at one point in time. This cross sectional study represents a slice of time, and does not show how the individuals' behaviour may change over time. Further study employing a longitudinal design would ascertain whether or not the individual's attitude toward adoption of the technology would change over time. While this research provided a useful “snapshot” of consumer data, thereby helping to understand the phenomenon under study, it could not explain possible changes in consumer attitudes over time. It is generally recognised that longitudinal studies (or at least a series of cross-sectional studies) can detect attitude changes over time and allow stronger inferences to be drawn about the dynamic elements of behaviour (De Wulf, 1999).

Second, there were limitations arising from the sample used in the quantitative study. First, the sample size was relatively small ($n = 446$) for looking at a population's attitude and behaviour. Given the relatively small sample size, more versatile and powerful statistical techniques such as Structural Equation Model (SEM), which is optimised for large samples (Muehling and Lacznik, 1992), could not be run. Instead, this study utilised the conventional ordinary least square (OLS) regression to analyse data gathered from the survey. Moreover, the subjects were not taken from a probability sample. Although there appeared not to be any sample biases, compared to the population from which it was drawn, this possibility cannot be categorically ruled out. A related problem was that of the population of interest for the overall study, Jordanian university students. As in many marketing and psychology studies, students

were treated as representative of a broader national population (young adults, aged 18 – 30 years). While it could be questioned whether this was a valid assumption, it is likely that university students are representative of the broader population on a number of variables which are relevant to the study, such as Web literacy.

Third, another limitation was the procedure used to validate the summated scales in the questionnaire. Although the researcher was reasonably confident that the scales were reliable, uni-dimensional, had good item analysis coefficients and expert-determined face validity, there was no rigorous assessment of the construct validity of the scales (i.e., in terms of culture, trust and quality dimensions). In other words, it cannot be conclusively stated that the scales did indeed accurately measure the constructs in the research model. Further validation studies are required to confirm that the measures accurately measured the constructs, for example by using such techniques as multi-trait, multi-method (MTMM) matrices and structural equation modelling (e.g., Campbell and Fiske, 1959; Peter, 1981).

Finally, the qualitative study, though informative, had a limited number of interviews (sixteen semi-structured interviews) and subsequent data analysis was limited due to time constraints.

Despite these limitations, the present study provides valuable insights into the study of IT technology adoption and specifically, Internet banking. The acknowledged limitations of this study have led to suggestions for further research.

9.7 Areas for Future Research

This section suggests related areas of research where additional investigation may be fruitful.

One direction for further research would be to expand the model to include other variables. The variables included in this research model were those found in the literature and those that resulted from the semi-structured interviews. Nevertheless, this pioneering B2B and B2C Internet research could be followed by further research that includes constructs such as 'perceived value' and 'perceived risk', which are considered important determinants of adoption behaviour. Some conceptual models of B2C internet-facilitated relationships depict the effect of social and technical dispositions on the relationship. These could be added to the model and tested to reduce the unexplained variance in the internet-facilitated relationship. As well, the construct of 'level of Internet use' needs to be refined and adapted for other industries and for evolving B2B Internet application.

Other behavioural constructs may also be useful in further research. Variables which influence satisfaction, brand reputation and switching cost were not identified in this model. Further, research could be carried out to further improve the structural model to obtain a more comprehensive view of customer loyalty to Internet banking. This model was developed highlighting only customers trust and loyalty to Internet banking - it may not cover the entire view of the issues surrounding customer values. Subsequent research could address the issue from different angles, such as investigating customer views and Internet banking manager views together in the same research project, thereby providing more valuable information from an expanded view.

There are three other important implications for future research arising from this study. First, even though the research explained the relationship between implementation experience and usefulness; much remains unexplained regarding how to manage employee perceptions regarding the ease of use and implementation experience. There is a need to learn more about what it means in actual practice and identify different approaches that work best. For instance, when planning to implement Internet applications such as Internet banking technology, testing within the phases of the implementation process through the use of pre-tests and post-tests may help identify and explain different approaches.

Second, an interesting extension of this study would be to determine how this research could be adapted to include perceptions of non-users. A comparison of users' and non-users' perceptions about Internet applications such as internet banking technology would provide a greater insight to the application of TAM and the operational model used in this study.

Third, it would be useful to conduct a mediation analysis between the external variables, beliefs construct, and use behaviour by using a larger population with two different user populations, two different research settings (laboratory and field), and different systems sophistication. This would provide some empirical evidence favouring the external validity of the operational model used to conceptualize the framework for this study, and explore other external variables.

9.8 Some Final Thoughts on the Future of Internet Banking

Because so many banks have launched Internet sites in the last few years, banks can no longer differentiate themselves by merely having an Internet presence. In addition, online banking services such as reviewing banking transactions, completing online credit card applications and even bill payment may become industry standard over the next few years. Research predicts that:

- Internet banking will continue to grow, as customers become more familiar and comfortable with Internet transactions.
- Banks will further extend the functionality and content on their web sites, moving beyond the basic transaction services to more personalized service and sales.
- The demographics of the online customer will change. Most studies to date show that online and Internet customers have more accounts and higher balances. This is likely to change as computers and Internet access become more mainstream and use extends to wider demographic groups.

To differentiate themselves for the future, banks must offer personalized and customizable Internet-based services that are not only valued by their customers, but also unique to them. In addition, these services must evolve continuously to meet customers' needs, capitalizing on new technologies to build stronger customer relationships.

As the Internet drives an increasingly important part of the bank's overall business, banks are quickly discovering that their current structure and business processes do not support Internet development efforts. Examples of this include:

- The web requires interactive content and rapid delivery; most banks cannot deliver information quickly, as they are trapped by unaligned organisational structures and costly legacy systems.
- Banks are used to annual or semi-annual development cycles; the web requires at least quarterly or semi-quarterly development.
- Bank marketing programs and products are based on product or physical location; the web allows customers to easily compare all products and sign up for all products irrespective of location.
- Wholesale and retail business units generally operate separately. On the web, financial institutions can benefit by developing a unified brand and technology approach. (While this requires linking previously separate operations, it offers the opportunity to leverage wholesale relationships to provide more services to retail customers, strengthening customer relationships while lowering development costs.)

Financial service organisations, particularly banks and insurance companies, have been slower to embrace the Internet than organisations in other industries such as software related companies. This is due at least in part to some of the challenges listed above. The global presence and rapid growth of such rivals such as Intuit, America Online and Microsoft, is seen by some banks as one of the biggest threats to their successful expansion of their business on the Internet. Banks can only compete with the non-bank entities by strategically realigning their organizations specifically to support Internet banking activities. However, while the long-term benefits of Internet banking services are thought to be incontestable, banks are currently wrestling with the development and adoption of the more immediate online banking business case.

The Internet is the driving engine of the new economy and it has given birth to Internet banking. Internet banking allows banks to delegate tasks to their customers. Thus, Internet banks are providing most of the traditional services through the Internet. The purpose of this study is to gain a deeper understanding of the role of Internet banking. The findings and conclusions of this study indicate that there are several factors that influence consumers on Internet banking websites, and various variables that enhance customer service in Internet banking.

The Internet is still used by a relatively small number of Jordanian people but it is growing from year to year. Some Jordanian banks have already introduced Internet banking and this new technology has the chance to become a popular service in the near future. In comparison with the introduction of online banking services in an economically developed country, the implementation of this facility in a transition economy is limited by a number of additional problems. Some of these problems are that: the legislation (especially the Internet and financial regulations) may be unstable, vague and incomplete; the financial system has high levels of risk; the banks' reputation is weak, and the offer of services is limited to the basic financial instruments; the Internet connection may be slow and unreliable; the number of people with a personal Internet connection is small; many people do not know how to use the Internet facilities; opportunistic bank strategies.

To increase the adoption of Internet banking the following have been suggested:

1. Media publicity can help ease customer concerns and restore their confidence.
2. Banks need to provide an undertaking that they will indemnify losses incurred through Internet use and this may help build customer confidence.
3. The information on Internet security aspects needs to be presented in more simple form.
4. Customer education about Internet banking needs to be readily available, and consistent
5. Legal and regulatory barriers to e-commerce in general and Internet banking need to be removed
6. Balance the costs of Web site installation and operation with bankers expectations and perceived benefits

To effectively enhance online banking service quality, bankers are first required to understand the attributes customers use to judge service quality. The traditional services quality conceptualisations were created to capture the interpersonal nature of service encounters and there have been many studies carried out addressing the key quality dimensions in the traditional banking environment. Currently the research on service quality in electronic environments represents a significant part of management and information sciences research activities. However, it does not give a unique formulation of customers' quality expectations and perceptions of e-commerce performance. Moreover, a prevalent part of the previous research deals with e-commerce in general. Consequently, there a prescribed framework for gathering and analysing the customer

expectations and perceptions of e-service quality does not exist. Also non-existent is a comprehensive e-service quality concept that provides a set of quality dimensions assuring an Internet banking manager that these are the quality criteria fully satisfying online banking customers.

This study provides an insight into customers' preferences in Internet banking in Jordan. The expanded Technology Acceptance Model (TAM) developed, assisted in further identifying the variables influencing the adoption of Internet banking by customers. Shared values, communication and opportunistic behaviour control were identified as critical factors influencing customer trust. To improve customer trust, security, regulatory controls and speed of response should be considered seriously by the Internet banking industry as they are the most important variables within every factor studied.

While further work is needed to determine a more detailed understanding of the factors themselves, and their influence on user behaviour, it is suggested that a variation on the TAM model could be useful for those in government and the banking industry who have an economic imperative to establish the Middle East in the global market place. To this end it is intended that this model will provide the basis of a more extensive empirical study of Internet banking in Jordan.

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**UNIVERSITY OF WOLLONGONG
INFORMATION SHEET FOR RESEARCH
PARTICIPANTS**

**" Internet Banking:
Adoption and Use by Individuals and Organizations in Jordan "**

Thank you for showing an interest in this research project. Please read this information sheet carefully before deciding whether or not you wish to participate. Participation in the study is entirely up to you.

Purpose: I am conducting a survey as partial fulfilment of the requirements for the degree of Doctor of Philosophy in Information Systems at the University of Wollongong Australia. The university website is "www.uow.edu.au". My doctoral research concern is to determine the causes, propose the strategies and impacts of Internet Banking adoption in Jordan. More specifically, this study will investigate the adoption and use of Internet Banking, identify the problems that individuals and organisations encounter while adopting or using Internet Banking and, outline strategies, which propose opportunities for organisations and consumers to expose unseen problems.

Description: The purpose of this survey is to provide and identify some cultural issues. Trust in banks and web services. The technology used in bank service and the online system quality. In this survey I ask your opinion about these aspects, I also ask some background information about the demographical data such as age, sex, education, experience, and income.

The survey will not take more than 20 minutes to complete. All survey items are confidential. In return for your participation in this study, you will receive a summary of the result of this study. Your help and participation is highly respected.

Confidential: your responses will be treated in strict confidence by the department of information systems, the University of Wollongong and the researcher. Any result reported will be done in aggregate to protect your anonymity and will not show any participant or organization your identity.

Complaints: if you have any complaints about the conduct of the study, then please contact Complaint Officer, University Of Wollongong/ Illawarra Area Health Service Human Research Ethics Committee on ??.

Please note that the Human Research Ethics Committee of the University of Wollongong has reviewed this study

INSTRUCTIONS

Thank you for taking the time to complete this survey. This study will investigate how organizations and individuals in Jordan, perceive “Adoption and Use” of the Internet and its applications for Internet banking, and examines which factors affect and how they influence the adoption of Internet banking in Jordan.

Internet banking is using the Internet to perform banking activities such as account transfers, balance inquiries, bill payments, and stop-payment requests, and some even offer online loan and credit card applications from any place and anytime, day or night, via the Internet.

For most questions simply circle the number that corresponds to your answer, as in the examples below.

Example:

	<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
Internet is able to access me to my bank with convenient hours of operation (7 days, 24 hours)	1	2	3	4	5

For most questions simply tick in the square (✓) that corresponds to your answer, as in the examples below.

Example:

What is your sex (Gender)?

Male Female

Section (1):

Please, State how much you agree with each of the statements listed below on the attached scale (Circle one option):

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	It is important to have job requirements and instructions spelled out in detail so that people always know what they are expected to do	1	2	3	4	5
2	Rules and regulation are important because they inform workers what the organization expects of them	1	2	3	4	5
3	People should avoid making changes when their outcomes are uncertain.	1	2	3	4	5
4	Order and structure are very important in a work environment	1	2	3	4	5
5	It is better to work in an organization with specific rules and regulations as opposed to a more flexible organization	1	2	3	4	5
6	Working in a structured environment is better than working (rules and regulations)in an unstructured work environment	1	2	3	4	5
7	Managers should be careful not to ask the opinions of subordinates too frequently, otherwise the manager might appear to be weak and incompetent	1	2	3	4	5
8	Manager should make most decisions without consulting subordinates	1	2	3	4	5
9	Employees should not question their manager's decisions	1	2	3	4	5
10	Manager should not ask subordinates for advice, because they might appear less powerful	1	2	3	4	5
11	In general, the manager, not the employees should have the last word	1	2	3	4	5
12	Decision making power should stay with top management in the organization and not be delegated to lower level employees	1	2	3	4	5
13	It is preferable to have a man in high level position rather than a woman	1	2	3	4	5
14	Men usually solve problems with logical analysis; women usually solve problems with intuition	1	2	3	4	5
15	Solving organizational problems usually requires an active forcible approach which is typical of men	1	2	3	4	5
16	Individual rewards are not as important as group welfare	1	2	3	4	5
17	Group success is more important than individual success	1	2	3	4	5
18	Respect for tradition hampers performance	1	2	3	4	5
19	The exchange of favors and gifts is not necessary to excel	1	2	3	4	5
20	Upholding one's personal image makes little difference in goal achievement	1	2	3	4	5

Section (2):

The statements below represent the dimensions of trust in bank and electronic bank service channels, Please circle around the number which represents your appropriate answer at best on the attached scale.

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	The performance of online transactions makes me confident in my bank.	1	2	3	4	5
2	My bank is honest with me	1	2	3	4	5
3	My bank has a good reputation.	1	2	3	4	5
4	I feel loyal towards my bank.	1	2	3	4	5
5	I am happy with the efforts my bank is making towards a regular customer like me.	1	2	3	4	5
6	I am satisfied with the relationship I have with my bank	1	2	3	4	5
7	My bank is one that keeps promises and commitments	1	2	3	4	5
8	Overall I trust my bank	1	2	3	4	5
9	I expected that using the Internet to access my bank will perform as well as other technologies such as telephone banking or TV banking.	1	2	3	4	5
10	I expected that using the Internet to access my bank will be available for use without interruption of service.	1	2	3	4	5
11	I was very confident that using the Internet to access my bank would perform as reliably as I expected it to perform.	1	2	3	4	5
12	I thought that using the Internet to access my bank has the capability to provide a desired level of service in adverse or hostile conditions (e.g., natural disasters).	1	2	3	4	5
13	I trust the Internet to do transaction such as (money transferring)	1	2	3	4	5

Section (3):

Please, circle around the number which represents your appropriate answer about the how much you believe that (Internet) online service quality offered by your bank is satisfactory.

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	Internet guarantees that all transactions to my bank have taken place	1	2	3	4	5
2	Internet is able to conduct my transactions to my bank accurately	1	2	3	4	5
3	Internet is able to allow access to my bank with convenient hours of operation (7 days, 24 hours)	1	2	3	4	5
4	Internet enables me to Feedback my complaints about my bank immediately or within 24 hours	1	2	3	4	5
5	Internet will help me to get any questions about my bank answered	1	2	3	4	5
6	Using the Internet to do transactions is efficient/no wait time	1	2	3	4	5
7	Internet will connect customer with the bank immediately	1	2	3	4	5
8	Using internet to do money transaction is secure	1	2	3	4	5
9	Using internet to do money transaction will not disclose my private information	1	2	3	4	5

Section (4):

Please, circle the degree to which your believe that individuals will adopt Internet banking if they perceive the Internet would help them to achieve the desired performance.

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	Using the Internet gives me greater control over my work.	1	2	3	4	5
2	Using the Internet improves my job performance.	1	2	3	4	5
3	Internet enables me to accomplish tasks more quickly.	1	2	3	4	5
4	Internet supports critical aspects of my job	1	2	3	4	5
5	Using the Internet allows me to accomplish more work than would otherwise be possible.	1	2	3	4	5
6	Using the Internet enhances my effectiveness on the job.	1	2	3	4	5
7	Using the Internet improves the quality of the work I do.	1	2	3	4	5
8	Using the Internet increases my productivity.	1	2	3	4	5
9	Using the Internet makes it easier to do my job.	1	2	3	4	5
10	Overall, I find the Internet useful in my job.	1	2	3	4	5

Please, circle the degree to which you believe that using the Internet would be free of effort

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	Learning to operate the Internet is easy for me	1	2	3	4	5
2	I find it easy to get the Internet to do what I want it to do	1	2	3	4	5
3	My interaction with the Internet is clear and understandable	1	2	3	4	5
4	It is easy for me to remember how to perform tasks using the Internet	1	2	3	4	5
5	Overall, I find the Internet easy to use	1	2	3	4	5

Section (5):

Please, circle around the number which expresses the degree of your favourableness or unfavourableness towards using Internet

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	Using the Internet is a good idea	1	2	3	4	5
2	I like the idea of using the Internet	1	2	3	4	5
3	Using the Internet would be pleasant	1	2	3	4	5
4	I dislike the idea of using the Internet	1	2	3	4	5

Please, state how strong your intention to use the Internet to perform banking activities such as account transfers, balance inquiries, bill payments, and stop-payment requests is.

Qu		<i>Strongly disagree</i>	<i>Disagree</i>	Neutral	Agree	<i>Strongly agree</i>
1	I intend to use the Internet to do that frequently	1	2	3	4	5
2	I predict that I should use the Internet to do that in the future	1	2	3	4	5
3	It is likely that I will transact with the Internet to do that in the future	1	2	3	4	5

Section (6):

Please, state whether you are a bank customer or not

Yes No

Do you have an access to the Internet (from anywhere, anytime)?

Yes No

Please, tick (✓) any of the following, which are relevant to your answer.

Does your bank have a website?

Yes No don't know

Does your bank offer the Internet Banking service?

Yes No don't know

Are you using the Internet Banking service?

Yes No

Your Gender (sex):

Female Male

Please tick (✓) the most appropriate answer.

What age group are you in?

- 18 – 25 years
- 26 - 35 years
- 26 - 45 years
- 46 – 55 years
- 55 and above

Define your education level:

- High school
- Comminutes Degree
- Bachelor degree
- Master degree
- Doctoral degree

Appendix (II): Cover Letter for the Research Ethics Committee and the Main Questionnaire
(Arabic Copy)

جامعة ولنجونج الاسترالية
نموذج معلومات للمشاركين بالبحث

” تبني واستخدام العمل المصرفي عبر الانترنت من قبل الافراد
والمؤسسات في الاردن “

شكرا لاهتمامك بهذا البحث، الرجاء قراءة هذه الورقة بتمعن قبل التفكير في المشاركة أو عدم المشاركة، علما ان حرية المشاركة في الدراسة تعود بشكل تام لك.

هدف الدراسة: اقوم بهذه الدراسة الميدانية كجزء من متطلبات الحصول على درجة الدكتوراه في نظم المعلومات الادارية من جامعة ولنجونج في استراليا، مع العلم ان موقع الجامعة على الانترنت هو www.uow.edu.au. بحثي لدرجة الدكتوراه يهتم بتحديد الأسباب وإقتراح السياسات والتأثيرات على تبني العمليات المصرفية باستخدام الانترنت في الأردن وبشكل أكثر تحديداً هذه الدراسة سوف تبحث عن تبني واستخدام العمليات المصرفية عن طريق الانترنت، تحديد المشاكل التي تواجه الأفراد والمؤسسات في أثناء تبني العمليات المصرفية عن طريق الانترنت، وتذكر الدراسة بشكل موجز السياسات التي تعطي الفرصة للمؤسسات والأفراد لتجنب المشاكل غير الظاهرة.

الوصف: هدف هذه الدراسة الميدانية هو إيجاد وتحديد بعض الجوانب مثل القضايا الثقافية، الثقة بالبنك والخدمات عبر الشبكة، التكنولوجيا المستخدمة في البنك ونظام الجودة المرتبط بالشبكة. أطلب رأيك في هذه الدراسة الميدانية عن المجالات السابقة بالإضافة الى بعض المعلومات الأخرى التي تتعلق بالبعد الديمغرافي مثل العمر، الجنس، التعليم، الخبرة والدخل. لا تتطلب هذه الاستبانة أكثر من 20 دقيقة لإكمالها مع العلم أن جميع بيانات الاستبانة تعد سرية وسوف تستلم ملخص عن نتائج هذه الدراسة إذا رغبت، مع العلم أنني أقدر جداً مشاركتك.

السرية: إجابات الاستبانة سوف تعامل بشكل سري للغاية عن طرق قسم نظم المعلومات في جامعة ولنجونج بالإضافة إلى الباحث، وسوف تعمل النتائج بشكل كلي بحيث تحمي مصدر المعلومات ولن تظهر أي هوية للمنظمة أو الشخص المشارك.

الشكاوي: إذا كان لديك أي شكوى عن سلوك الدراسة الرجاء الإتصال بمسؤول الشكاوي على رقم 0242214457 استراليا.

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الرجاء ملاحظة أن لجنة الدراسات الأخلاقية والإنسانية في جامعة ولنجونج قد راجعت هذه الدراسة.

الجزء الأول:

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 من الأهمية أن يكون هنالك متطلبات وتعليمات للعمل موضحة بشكل دقيق، وبذلك يعرف الناس ما هو متوقع منهم عمله
5	4	3	2	1	2 الأنظمة والقوانين مهمة لأنها تبين للموظفين ما الذي يتوقعه التنظيم منهم
5	4	3	2	1	3 على الأفراد تجنب إحداث أي تغييرات عندما تكون النتائج غير مؤكدة لهم
5	4	3	2	1	4 إن النظام والهيكل التنظيمي مهمة جدا في بيئة العمل
5	4	3	2	1	5 من الأفضل العمل في مؤسسة ذات قوانين وأنظمة على العمل في مؤسسة أكثر مرونة
5	4	3	2	1	6 إن العمل في بيئة منظمة (ذات قوانين وتشريعات محددة) أفضل من العمل في بيئة غير منظمة
5	4	3	2	1	7 على المدير أن لا يكون حذرا بحيث لا يسأل موظفيه عن آرائهم بشكل دائم، لأن ذلك يمكن أن يظهر ضعفه وعدم جدارته
5	4	3	2	1	8 على المدير اتخاذ القرارات دون استشارة رؤوسيه
5	4	3	2	1	9 على الموظفين عدم مناقشة قرارات مديرهم
5	4	3	2	1	10 يجب على المدير أن لا يطلب النصيحة من رؤوسيه حتى لا يبدو ضعيفا
5	4	3	2	1	11 يجب أن تكون الكلمة الأخيرة عموم للمدير وليست للموظفين
5	4	3	2	1	12 إن سلطة اتخاذ القرارات يجب أن تبقى لدى الإدارة العليا في المؤسسة وان لا تفوض موظفي المستوى الأدنى
5	4	3	2	1	13 من الأفضل أن يكون فمناصب المستوى الأعلى رجل وليس امرأة
5	4	3	2	1	14 إن الغالب الرجال و يحلون المشاكل بالاعتماد على التحليل المنطقي، بينما تعتمد النساء على التخمين
5	4	3	2	1	15 إن حل المشاكل التنظيمية غالبا ما يتطلب مدخلا قويا ونشيطا، والذي يتوفر في الأصل عند الرجال
5	4	3	2	1	16 إن مكافأة الأفراد ليست مهمة كرفاهية المجموعة
5	4	3	2	1	17 نجاح المجموعة أكثر أهمية من نجاح الفرد إن
5	4	3	2	1	18 إحترام التقاليد يعيق الأداء
5	4	3	2	1	19 تبادل الهدايا والخدمات ليس ضروريا للتميز
5	4	3	2	1	20 تأييد شخص يؤثر بشكل طفيف على تحقيق الأهداف

الجزء الثاني:

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 أداء المعاملات البنكية تجعلني أثق ببنكي
5	4	3	2	1	2 بنكي صادق معي
5	4	3	2	1	3 بنكي له سمعة جيدة
5	4	3	2	1	4 أشعر بالولاء لبنكي
5	4	3	2	1	5 أنا سعيد بالجهد الذي يبذله بنكي للعملاء العاديين مثلي
5	4	3	2	1	6 أنا راضٍ عن علاقتي ببنكي
5	4	3	2	1	7 بنكي يحافظ على الوعود والالتزامات
5	4	3	2	1	8 بشكل عام أنا أثق ببنكي
5	4	3	2	1	9 أتوقع أن استخدام الانترنت للتعامل مع بنكي سيكون له نفس أداء استخدام التكنولوجيات الأخرى مثل التلفون البنكي
5	4	3	2	1	10 أتوقع أن استخدام الانترنت للتعامل مع بنكي سيكون متوفراً دون إنقطاع للخدمة
5	4	3	2	1	11 كنت واثقا أن استخدام الانترنت في التعامل مع بنكي سيكون جديرا بالثقة كما توقعته
5	4	3	2	1	12 أعتقد أن استخدام الانترنت يستطع ان يزودني بكل المعلومات التي احتاجها من بنكي في كل الظروف(الكوارث الطبيعية)
5	4	3	2	1	13 أثق بالانترنت لعمل المعاملات(مثل تحويل الأموال)

الجزء الثالث:

جودة الخدمة المصرفية المقدمة عبر الإنترنت. الرجاء قراءتها بتمعن تام ووضع دائرة حول الرقم الذي يعبر عن مدى موافقتك لكل عبارة.

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 يضمن الانترنت إتمام جميع المعاملات البنكية
5	4	3	2	1	2 الانترنت قادر على إدارة معاملاتي البنكية بدقة
5	4	3	2	1	3 يضمن لي الانترنت التعامل مع بنكي في الأوقات الملائمة (24 ساعة، 7 أيام)
5	4	3	2	1	4 الانترنت يمكنني من الحصول على رد سريع فوراً أو خلال 24 ساعة على الشكاوي التي أوجهها بخصوص خدمات بنكي
5	4	3	2	1	5 سوف يساعدني الانترنت للحصول على أي إستفسار يتعلق ببنكي
5	4	3	2	1	6 استخدام الانترنت لعمل التحويلات المالية يعد فعالاً (لا يوجد وقت إنتظار)
5	4	3	2	1	7 تعمل الانترنت على ربط العميل بالبنك مباشرة
5	4	3	2	1	8 استخدام الانترنت لعمل التحويلات المالية أمناً
5	4	3	2	1	9 استخدام الانترنت لعمل التحويلات المالية لن يكشف معلوماتي الشخصية

الجزء الرابع:

الرجاء وضع دائرة حول الخيار الذي يعبر عن مدى اعتقادك أن الإنترنت سوف يعزز من أداء للعمل

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 استخدام الإنترنت يمنحني سيطرة أكبر في عملي
5	4	3	2	1	2 استخدام الإنترنت يطور من أدائي لوظيفتي
5	4	3	2	1	3 استخدام الإنترنت يمكنني من إنجاز مهامتي بشكل أسرع
5	4	3	2	1	4 إن استخدام الإنترنت يساعدني في التغلب على جوانب القصور في وظيفتي
5	4	3	2	1	5 استخدام الإنترنت يتيح لي إنجاز أعمال أكثر فيما لو تم إنجازها بطرق تقليدية
5	4	3	2	1	6 استخدام الإنترنت يعزز فعاليتي في عملي
5	4	3	2	1	7 استخدام الإنترنت يحسن جودة العمل الذي أقوم به
5	4	3	2	1	8 استخدام الإنترنت يزيد من إنتاجيتي
5	4	3	2	1	9 استخدام الإنترنت يجعل إنجاز وظيفتي أسهل
5	4	3	2	1	10 بشكل عام أجد أن الإنترنت مفيد في عملي

الرجاء وضع دائرة حول الدرجة التي تعتقد بأن استخدام الإنترنت لا يتطلب جهدا

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 تعلم استخدام الإنترنت سهل بالنسبة لي
5	4	3	2	1	2 أجد من السهولة إن احصل على ما أريد من الإنترنت
5	4	3	2	1	3 إن الإنترنت بالنسبة لي واضح وقابل للفهم
5	4	3	2	1	4 من السهل بالنسبة لي تذكر كيفية أداء الأعمال باستخدام الإنترنت
5	4	3	2	1	5 بشكل عام أجد أن الإنترنت سهل الاستخدام

الجزء الخامس

الرجاء وضع دائرة حول رقم الذي يدل على درجة تأييدك أو عدم تأييدك لاستخدام الإنترنت للقيام بالأعمال المصرفية.

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 استخدام الانترنت فكرة جيدة
5	4	3	2	1	2 أحب فكرة استخدام الانترنت
5	4	3	2	1	3 استخدام الانترنت سيكون ممتعاً
5	4	3	2	1	4 لا أحب فكرة استخدام الانترنت

الرجاء حدد مدى قوة تصميمك على استخدام الإنترنت لأداء العمليات البنكية مثل تحويل الحسابات، استعلامات الرصيد، دفع الفواتير، طلب وقف الدفع، بالإضافة إلى تقديم القروض عبر الإنترنت وتقديم طلب الحصول على بطاقة الفيزا من أي مكان وفي أي وقت، ليلاً ونهاراً عن طريق الإنترنت.

أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة	
5	4	3	2	1	1 أنوي استخدام الانترنت للقيام بالأعمال المدونة أعلاه بشكل متكرر
5	4	3	2	1	2 أتنبأ أنه يجب استخدام الانترنت للقيام بالأعمال المدونة أعلاه في المستقبل
5	4	3	2	1	3 من المحتمل أنني سوف اتعامل مع الانترنت للقيام بالأعمال المدونة أعلاه في المستقبل

الجزء السادس الرجاء وضع إشارة (✓) في المربع المناسب

هل لديك حساب بنكي؟	نعم <input type="checkbox"/>	لا <input type="checkbox"/>
هل يمكنك الوصول للإنترنت من أي مكان وفي أي وقت؟	<input type="checkbox"/>	<input type="checkbox"/>
هل يوجد لبنكك موقع على الإنترنت؟	نعم <input type="checkbox"/>	لا <input type="checkbox"/>
هل بنكك يقدم الخدمات المصرفية باستخدام الإنترنت؟	نعم <input type="checkbox"/>	لا <input type="checkbox"/>
هل تستخدم الإنترنت للقيام بالعمليات المصرفية؟	نعم <input type="checkbox"/>	لا <input type="checkbox"/>

لا اعرف

لا اعرف

الجنس:

نكر أنثى

الفئة العمرية (بالسنوات)

25-34

35-44

45-54

55-64

أكبر من

أعلى درجة علمية أنهيتها

تو	
دبلوم	
بكالوريوس	
ماجستير	
دكتورا	
من 500 دينار	
5- اقل من 1000 دينار	
10- اقل من 1500 دينار	
15- اقل من 2000 دينار	
من 2000 دينار	

إجمالي الدخل الشهري بالدينار الأردني تقريبا

تقريباً, كم عدد سنوات استخدامك للكمبيوتر ؟ (.....) الرجاء حدها بالسنوات

تقريباً, كم عدد سنوات استخدامك للإنترنت ؟ (.....) الرجاء حدها بالسنوات

هل أنت ؟ قطاع خاص موظف باع عام

إذا كان لديك أي تعليقات أخرى؟ الرجاء كتابتها هنا

شكرا لك على الوقت الذي بذلته لإتمام هذا الاستبيان

Appendix (III): Cover Letter for the Research Ethics Committee and the Main Questionnaire
(English Copy)

UNIVERSITY OF WOLLONGONG INFORMATION SHEET FOR RESEARCH PARTICIPANTS

“Internet Banking: Adoption and Use by Individuals and Organisations in Jordan”

Thank you for showing an interest in this research. Please read this information sheet carefully before deciding whether or not you wish to participate. Participation in the study is entirely up to you.

Purpose: I am conducting a survey as a partial fulfilment of the requirements for the degree of Doctor of Philosophy in Information Systems in University of Wollongong Australia. The university website is "www.uow.edu.au". My doctoral research concerns to explore the Internet Banking adoption in Jordan. More specifically, this study will investigate the adoption and use of Internet Banking, identify the problems that individuals and organisations encounter while adopting or using Internet Banking and, outline strategies, which propose opportunities for organisations and consumers to expose unseen problems.

Description: The purpose of this interview is to explore and identified the factors which influence the uses and adoption of the Internet banking in Jordan for example, cultural issues, trust in bank, web services, and the technology used in bank service and the online system quality. In this interview I ask your opinion in a general discussion about Internet Banking issues and it is adoption and uses. I also ask some background information about the demographical data such as age, sex, education, experience, and income.

The interview will take maximum one hour. The interview will be audio taped with your permission. The interview will be confidential. It maybe necessary to ask you to participate in a further interview in order to clarify issues raised in the first interview. I will contact you if this is necessary and arrange a meeting time and place which is suitable. I will send back the transcribe of your interview to read it and if you disagree of any items you can erase it and by the end of the research you will receive a report summary of this study.

Confidential: your responses will be treated in strict confidence by the department of information systems, the University of Wollongong and the researcher. Any result reported will be done in aggregate to protect the your anonymity and will not show any participant or organisation identity. Any identifying information provided during the interview/s will be erased and/or replaced by pseudonyms. Place and time convenient for you will be arranged for the purpose of the interview and at any time you can withdrawal your participants without any penalty. If you decide to participate in this study, please sign the consent form. This form will be sealed in an envelope and will be locked in a safe place in my home and on return to Australia in a locked filing cabinet in my office at the University. Your help and participation is highly respected and will assist me in completing my studies.

Complaint: if you have any complaints about the conduct of the study, then please contact Complaint Officer, University Of Wollongong/ Illawarra Area Health Service Human Research Ethics Committee on

Please note that the Human Research Ethics Committee of the University of Wollongong has reviewed this study

Thank you very much for your participation

Interviews Questions

(A) Interview questions for the Mangers

1. Question about background information will be used with all interviewees, for example age, education level, income status, position status, experience and any thing related to the study.
2. Could you tell me about the Internet Banking in Jordan?
3. Could you tell me about the possibilities of adoption and using the Internet Banking as individual and organisations? And how culture can influence that
4. How do consumers perceive Internet Banking compared to traditional branch Banking?
5. What kind of strategies the bank should use to change consumer attitudes toward Internet Banking?
6. Could you tell me about the consumers' attitude and behavior toward using the Internet Banking?
7. How could the bank adopt and motivate the consumers to use Internet Banking services?
8. What we can do to help the Individuals and Organizations to accelerate the adoption of Internet Banking?

(B) Interviews Question can be used with IT people.

1. Could you tell me about the Internet Banking?
2. What do you suggest in order to adopt and use the Internet Banking as daily services to individual and organisations
3. Could you tell me why you are not using the Internet Banking services?
4. What do you need in order to use the Internet Banking as your regular way for bank transactions

(D) Interview questions with academics from different Jordanian universities

- 1.** Could you tell me how do you see the Internet Banking in Jordan?
2. Could you tell me to what extent do Jordanian employees and consumers believe that the Internet has been successfully/effectively adopted and used for Internet Banking?
3. As academician could you tell me how we could adopt the Internet Banking services to be used in a wide range by consumers and organisations?
4. How do you think the Jordanian culture influence the adoption and using of Internet Banking?

Appendix (IV): The Ethics Committee Approval

FINAL APPROVAL

In reply please quote: RN:ES HE03/212

Further Enquiries: Eve Steinke (PH:)

30 July 2004

Mr A Saleh Al-Sukkar

Dear Mr Saleh Al-Sukkar

I am pleased to advise that renewal of the following Human Research Ethics application has been approved. As a condition of approval, the Human Research Ethics Committee requires that researchers immediately report anything which might warrant review of ethical approval of the protocol, including: serious or unexpected adverse effects on participants, proposed changes to the protocol, unforeseen events that might affect continued ethical acceptability of the project and discontinuation of the research project before the expected date of completion.

Ethics Number:	HE03/212
Project Title:	Internet banking adoption and use by individuals and organizations in Jordan.
Name of Researchers:	Saleh Al Sukkar, Ahmad, A/P Helen Hasan
Approval Date:	26 August 2004
Date of Renewal:	25 August 2005

This certificate relates to the research protocol submitted in your original application and includes all approved amendments to date. Please note that research projects of long duration must be reviewed annually by the Committee and it will be necessary for you to apply for renewal of this application if experimentation is to continue beyond one year.

Yours Sincerely,

Assoc. Prof. Rod Nillsen
Chairperson
Human Research Ethics Committee

Appendix (V): Linearity and Homoscedasticity

the points are randomly and evenly dispersed throughout the scatterplot. This pattern is indication of a situation in which the assumptions of linearity and Homoscedasticity have been met (Hair et al 1998).

Figure 7.3 Scatterplot: Culture Dimensions VS. PU

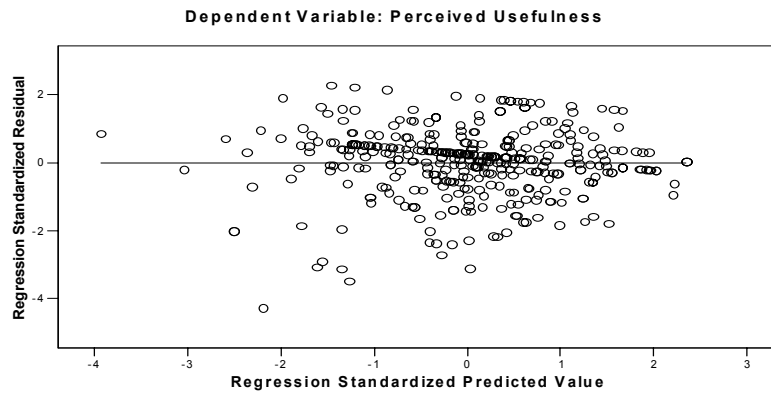


Figure 7.4 Scatterplot: Culture Dimensions VS. Perceived Ease of Use

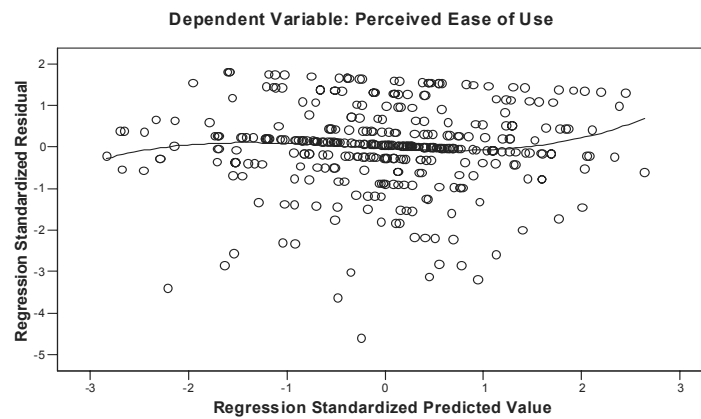


Figure 7.5 Scatterplot: Trust Dimensions VS. Perceived Usefulness

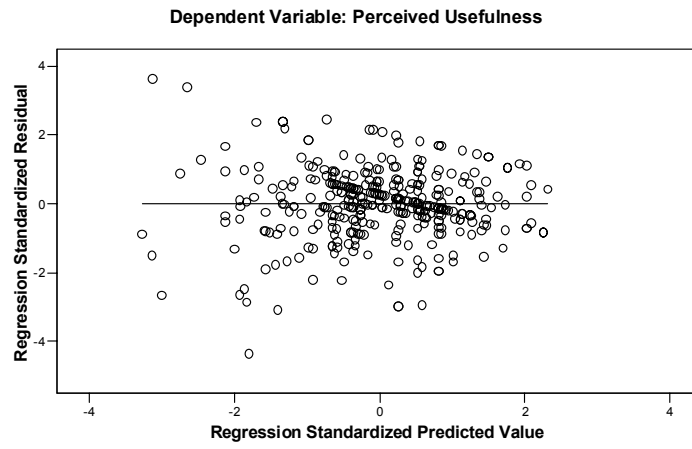


Figure 7.6 Scatterplot: Trust Dimension VS. Perceived Ease of Use

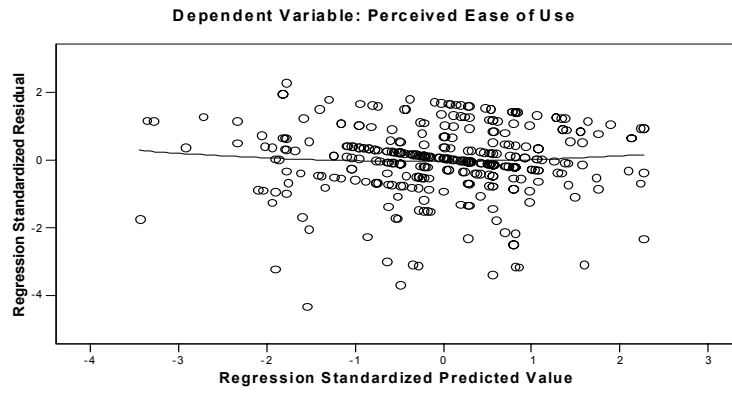


Figure 7.8 Scatterplot: Technology Quality dimension VS. Perceived Usefulness

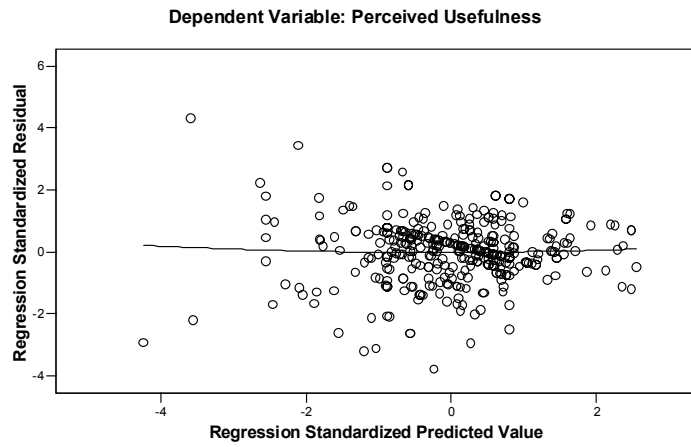


Figure 7.9 Scatterplot: Technology Quality Dimension VS. Perceived Ease of Use

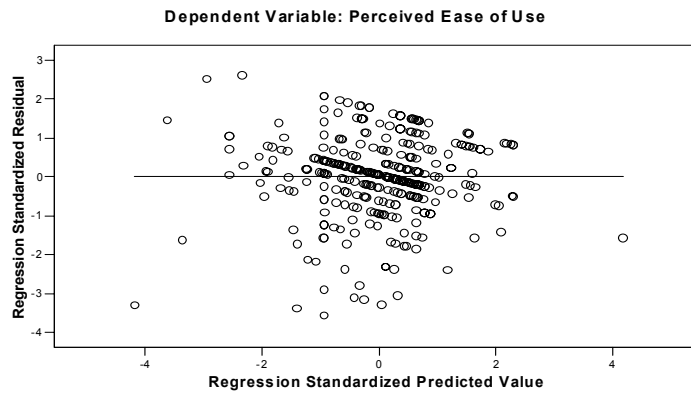
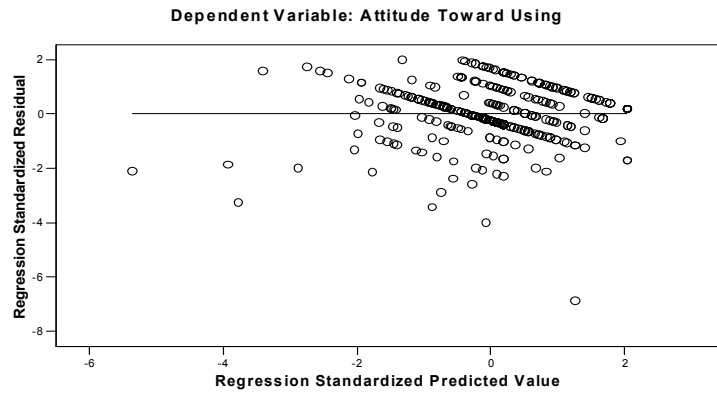


Figure 7.10 Scatterplot: PU & PEPU VS. Attitude Toward Using



Appendix (VI):

	Descriptive Statistics					
	Mean	Std. Deviation		Skewness	Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
UA1	4.51	.602	-1.447	.116	4.739	.231
UA2	4.49	.610	-1.190	.116	2.754	.231
UA3	3.55	.951	-.432	.116	-.430	.231
UA4	4.40	.695	-1.208	.116	2.096	.231
UA5	3.74	1.059	-.650	.116	-.293	.231
UA6	4.38	.789	-1.825	.116	4.878	.231
PD1	2.39	1.128	.473	.116	-.795	.231
PD2	1.94	.903	1.091	.116	1.248	.231
PD3	1.89	.845	1.233	.116	2.156	.231
PD4	2.03	.912	1.110	.116	1.416	.231
PD5	3.44	1.120	-.653	.116	-.444	.231
PD6	3.08	1.160	-.089	.116	-1.092	.231
MD1	3.17	1.333	-.117	.116	-1.183	.231
MD2	2.94	1.136	-.006	.116	-.939	.231
MD3	3.08	1.091	-.207	.116	-.980	.231
IC1	3.68	1.031	-.680	.116	-.289	.231
IC2	3.88	.873	-1.064	.116	1.473	.231
LST1	2.77	1.081	.185	.116	-.734	.231
LST2	3.17	1.061	-.242	.116	-.739	.231
LST3	3.09	.945	-.191	.116	-.658	.231
TB1	3.96	.697	-.942	.116	2.177	.231
TB2	3.82	.733	-.835	.116	.883	.231
TB3	4.00	.684	-1.096	.116	3.123	.231
TB4	3.50	.886	-.373	.116	-.192	.231
TB5	3.65	.876	-.949	.116	.908	.231
TB6	3.77	.779	-1.318	.116	2.382	.231
TB7	3.78	.724	-.897	.116	1.339	.231
TB8	3.84	.698	-1.127	.116	2.428	.231
TE1	3.65	.949	-.719	.116	.013	.231
TE2	3.58	.893	-.704	.116	.347	.231
TE3	3.51	.855	-.595	.116	.314	.231
TE4	3.37	.994	-.306	.116	-.428	.231
TE5	3.16	1.038	-.247	.116	-.753	.231
CA1	3.38	2.115	15.933	.116	306.719	.231
CA2	3.39	.871	-.486	.116	-.314	.231
CA3	3.77	.809	-.656	.116	.397	.231
FC1	3.57	.803	-.543	.116	.244	.231
FC2	3.76	.766	-.956	.116	1.379	.231
EF1	3.56	.864	-.640	.116	.304	.231
EF2	3.84	.724	-.861	.116	1.653	.231
SP1	2.87	.832	-.144	.116	-.230	.231
SP2	2.90	.903	-.195	.116	-.231	.231
PU1	3.77	.789	-.943	.116	1.189	.231
PU2	3.95	.754	-1.120	.116	2.510	.231
PU3	4.01	.714	-.872	.116	2.069	.231
PU4	3.59	.845	-.489	.116	.011	.231
PU5	3.98	.722	-.975	.116	2.024	.231
PU6	3.90	.720	-.937	.116	1.790	.231
PU7	3.89	.757	-.944	.116	1.621	.231
PU8	3.83	.771	-.783	.116	1.071	.231
PU9	3.85	.791	-.854	.116	1.084	.231
PU10	4.06	.721	-1.030	.116	2.687	.231
PEOU1	4.11	.723	-1.060	.116	2.157	.231
PEOU2	3.99	.766	-1.037	.116	1.905	.231
PEOU3	4.04	.724	-.961	.116	2.028	.231

PEOU4	3.87	.775	-.829	.116	1.352	.231
PEOU5	4.08	.740	-1.227	.116	3.044	.231
ATU1	4.20	.662	-1.269	.116	4.743	.231
ATU2	4.17	.665	-1.080	.116	3.617	.231
ATU3	4.10	.739	-1.037	.116	2.445	.231
BI1	3.53	.921	-.709	.116	.106	.231
BI2	3.88	.773	-1.057	.116	1.988	.231
BI3	3.94	.769	-1.324	.116	3.239	.231
Valid N (listwise)						

Appendix (VII):antiimage_pu

Correlation Matrix

		PU1	PU2	PU3	PU4	PU5	PU6	PU7	PU8	PU9	PU10
Correlation	PU1	1.000	.638	.646	.497	.472	.588	.609	.547	.608	.589
	PU2	.638	1.000	.706	.504	.477	.571	.566	.476	.527	.593
	PU3	.646	.706	1.000	.484	.567	.588	.555	.559	.612	.658
	PU4	.497	.504	.484	1.000	.408	.552	.556	.493	.524	.465
	PU5	.472	.477	.567	.408	1.000	.601	.514	.502	.530	.508
	PU6	.588	.571	.588	.552	.601	1.000	.727	.620	.613	.640
	PU7	.609	.566	.555	.556	.514	.727	1.000	.688	.668	.646
	PU8	.547	.476	.559	.493	.502	.620	.688	1.000	.721	.634
	PU9	.608	.527	.612	.524	.530	.613	.668	.721	1.000	.686
	PU10	.589	.593	.658	.465	.508	.640	.646	.634	.686	1.000

KMO and Bartlett's Test

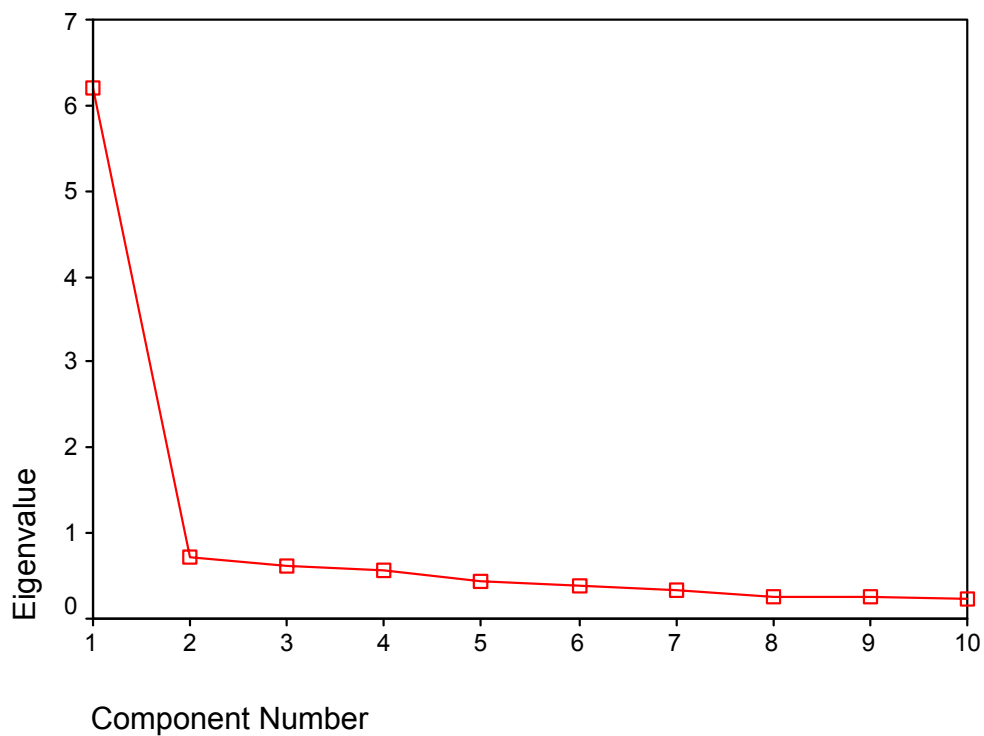
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.939
Bartlett's Test of Sphericity	Approx. Chi-Square	2925.670
	df	45
	Sig.	.000

Anti-image Matrices

		PU1	PU2	PU3	PU4	PU5	PU6	PU7	PU8	PU9	PU10
Anti-image Covariance	PU1	.438	-9.52E-02	-7.42E-02	-3.27E-02	3.238E-03	-2.63E-02	-4.76E-02	-6.76E-03	-5.34E-02	-1.35E-02
	PU2	-9.52E-02	.411	-.145	-6.60E-02	-7.50E-03	-2.26E-02	-3.63E-02	3.126E-02	1.774E-02	-4.30E-02
	PU3	-7.42E-02	-.145	.354	-1.43E-02	-9.06E-02	-7.34E-03	3.121E-02	-2.46E-02	-3.15E-02	-7.59E-02
	PU4	-3.27E-02	-6.60E-02	-1.43E-02	.592	-1.75E-03	-6.69E-02	-5.45E-02	-2.24E-02	-5.02E-02	2.478E-02
	PU5	3.238E-03	-7.50E-03	-9.06E-02	-1.75E-03	.555	-.118	-1.54E-03	-2.32E-02	-4.10E-02	1.084E-03
	PU6	-2.63E-02	-2.26E-02	-7.34E-03	-6.69E-02	-.118	.355	-.116	-2.76E-02	4.989E-03	-5.29E-02
	PU7	-4.76E-02	-3.63E-02	3.121E-02	-5.45E-02	-1.54E-03	-.116	.334	-9.01E-02	-4.10E-02	-4.00E-02
	PU8	-6.76E-03	3.126E-02	-2.46E-02	-2.24E-02	-2.32E-02	-2.76E-02	-9.01E-02	.383	-.125	-4.35E-02
	PU9	-5.34E-02	1.774E-02	-3.15E-02	-5.02E-02	-4.10E-02	4.989E-03	-4.10E-02	-.125	.346	-8.68E-02
	PU10	-1.35E-02	-4.30E-02	-7.59E-02	2.478E-02	1.084E-03	-5.29E-02	-4.00E-02	-4.35E-02	-8.68E-02	.383
Anti-image Correlation	PU1	.959 ^a	-.224	-.188	-6.42E-02	6.569E-03	-6.66E-02	-.124	-1.65E-02	-.137	-3.30E-02
	PU2	-.224	.921 ^a	-.380	-.134	-1.57E-02	-5.91E-02	-9.79E-02	7.876E-02	4.702E-02	-.108
	PU3	-.188	-.380	.919 ^a	-3.13E-02	-.204	-2.07E-02	9.067E-02	-6.68E-02	-9.00E-02	-.206
	PU4	-6.42E-02	-.134	-3.13E-02	.967 ^a	-3.05E-03	-.146	-.122	-4.71E-02	-.111	5.206E-02
	PU5	6.569E-03	-1.57E-02	-.204	-3.05E-03	.950 ^a	-.265	-3.57E-03	-5.03E-02	-9.36E-02	2.352E-03
	PU6	-6.66E-02	-5.91E-02	-2.07E-02	-.146	-.265	.934 ^a	-.337	-7.47E-02	1.423E-02	-.143
	PU7	-.124	-9.79E-02	9.067E-02	-.122	-3.57E-03	-.337	.932 ^a	-.252	-.120	-.112
	PU8	-1.65E-02	7.876E-02	-6.68E-02	-4.71E-02	-5.03E-02	-7.47E-02	-.252	.935 ^a	-.344	-.113
	PU9	-.137	4.702E-02	-9.00E-02	-.111	-9.36E-02	1.423E-02	-.120	-.344	.934 ^a	-.238
	PU10	-3.30E-02	-.108	-.206	5.206E-02	2.352E-03	-.143	-.112	-.113	-.238	.954 ^a

a. Measures of Sampling Adequacy(MSA)

Scree Plot



Appendix (VIII): antiimage_peou

Correlation Matrix

	PEOU1	PEOU2	PEOU3	PEOU4	PEOU5
Correlation PEOU1	1.000	.599	.678	.586	.720
PEOU2	.599	1.000	.633	.600	.577
PEOU3	.678	.633	1.000	.663	.695
PEOU4	.586	.600	.663	1.000	.644
PEOU5	.720	.577	.695	.644	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.879
Bartlett's Test of Sphericity	Approx. Chi-Square	1290.367
	df	10
	Sig.	.000

Anti-image Matrices

		PEOU1	PEOU2	PEOU3	PEOU4	PEOU5
Anti-image Covariance	PEOU1	.401	-8.74E-02	-9.22E-02	-2.36E-02	-.156
	PEOU2	-8.74E-02	.508	-.103	-.113	-2.72E-02
	PEOU3	-9.22E-02	-.103	.377	-.112	-9.57E-02
	PEOU4	-2.36E-02	-.113	-.112	.463	-9.99E-02
	PEOU5	-.156	-2.72E-02	-9.57E-02	-9.99E-02	.374
Anti-image Correlation	PEOU1	.866 ^a	-.194	-.237	-5.49E-02	-.403
	PEOU2	-.194	.906 ^a	-.235	-.233	-6.25E-02
	PEOU3	-.237	-.235	.878 ^a	-.268	-.255
	PEOU4	-5.49E-02	-.233	-.268	.893 ^a	-.240
	PEOU5	-.403	-6.25E-02	-.255	-.240	.858 ^a

a. Measures of Sampling Adequacy(MSA)

Scree Plot

