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# How to improve the Libyan client's acceptance and trust of using Internet Banking technology, and by doing so enhancing the performance of Libyan banks

المؤلفون Authors

**Mohamed Mukhtar Bisher Mukhtar**

*moh.mukhtar@sebhau.edu.ly*

**Faculty of Banking and Finance**
**University of Sebha**

**Abdelrahman Mousa Ahmed Abudirbala**

*arhomamousa@gmail.com*

**Faculty of Banking and Finance**
**University of Sebha**

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How to improve the Libyan client's acceptance and trust of using Internet Banking technology, and by doing so enhancing the performance of Libyan banks

***المستخلص***

كان الهدف من هذه الدراسة هو التحقق من العوامل التي تؤثر على قبول العميل والثقة في استخدام الخدمات المصرفية عبر الإنترنت في ليبيا، وتوفير فهم شامل لتصورات العملاء عن الخدمات المصرفية عبر الإنترنت في ليبيا. ونظرًا لعدم وجود دراسات تجريبية، فإن الدراسة الحالية هي استجابة لفجوة في الأدبيات الحالية التي تتطلب تطبيق اختبار نظرية أكثر تكاملاً وتحديد العوامل التي تؤثر على ثقة العميل في الخدمات المصرفية عبر الإنترنت. تم استخدام نموذج قبول التكنولوجيا (TAM) لقياس الوعي النسبي بالخدمات المصرفية عبر الإنترنت وفوائدها وجودة الإنترنت والثقة والأمن والمتغيرات الديموغرافية مثل العمر والجنس والتعليم.

تم استخدام استبيان لجمع بيانات من 70 عميلاً ليبيًا وموظفًا في مصرف الجمهورية، وقد تم الحصول على عدد 45 استبيان، أي ما يقارب 64.3% من حجم العينة المختارة. تمت معالجة الاستبيانات وتحليلها من خلال تحليل وصفي وإحصائي (SPSS) باستخدام تقنيات الارتباط والانحدار لفحص العلاقات بين المتغيرات.

أشارت النتائج إلى أن جودة الإنترنت وسهولة الاستخدام لها تأثير إيجابي وكبير على موقف العميل من استخدام الخدمات المصرفية عبر الإنترنت. كما أظهرت النتائج أن كلا من جوانب الثقة والأمن تعتبر من العوامل الحاسمة التي تؤثر على قبول العميل والثقة في استخدام الخدمات المصرفية عبر الإنترنت. علاوة على ذلك، أشارت نتائج الدراسة إلى أن مستوى التعليم له تأثير كبير على الموقف تجاه استخدام الخدمات المصرفية عبر الإنترنت، في حين أن العمر والجنس لهما أثر ضئيل.

توفر نتائج هذه الدراسة معلومات مهمة عن العوامل المختلفة التي تحتاج إلى إبرازها من قبل المصارف التي تقدم الخدمات المصرفية عبر الإنترنت وكذلك تلك المصارف التي تخطط لتقديم الخدمات المصرفية عبر الإنترنت. وعلاوة على ذلك، فإنه يوفر لمديري المصارف مبادئ توجيهية في فهم العوامل وكيفية توجيه جهودهم لتعزيز الخدمات المصرفية عبر الإنترنت وكيف يمكنهم تغيير الوضع الحالي من خلال تعزيز المواقف الإيجابية تجاه استخدام الخدمات المصرفية عبر الإنترنت، والتي بدورها يمكن أن تحسن قبول العميل الليبي والثقة في استخدام الخدمات المصرفية عبر الإنترنت.

الدراسة الحالية هي استجابة لفجوة في الأدبيات الموجودة حول الخدمات المصرفية عبر الإنترنت في سياق القطاع المصرفي الليبي. من المتوقع أن تكون النتائج ذات فائدة كبيرة بالنسبة إلى مصرف الجمهورية كمحاولة دراسية وغيرها من المصارف الليبية التي تخطط لتقديم خدمات مصرفية عبر الإنترنت في المستقبل.

**الكلمات الدالة:** الخدمات المصرفية عبر الإنترنت، القبول والثقة، نموذج قبول التكنولوجيا، ليبيا.

## *1. INTRODUCTION*

### *1.1 Background to the Research*

The developments of financial systems and information and communication technologies in the world during the last decade have brought about significant strategies, structures and concepts for both banks and clients. Mukherjee and Nath (2007) stated that the increasing use of the Internet for business transactions has enabled the delivery of Internet Banking, leading to its recent fast growth and becoming a popular means of banking for most clients. Internet banking (IB) has found its way into all financial services in Libya, allowing clients to conduct their banking transactions anywhere and anytime. Recently, banking industries in Libya have recognized the benefits of IB in enhancing their efficiencies and services/products.

However, the level of using IB is low in the Libyan banking industry due to lack of Internet awareness and its benefits, low level of education and computer literacy, shortage of technological infrastructure, security/privacy issues and lack of technological knowledge among bank employees. Thus, clients are afraid to use IB (lack of IB trust, etc.), as they are concerned with security aspects and may not be sufficiently IT-conversant to use IB (Khalfan and Alshawaf, 2004; Touati, 2008; Abukhzam and Lee, 2010). Therefore, these factors have led to lack of acceptance and trust of using IB in Libya. This research will focus on these factors, from the perspective of the Libyan bank clients, and the ways in which factors have impacted clients' trust of IB, and also the role of clients' acceptance and trust of IB. In addition, to see if there are any perceptions and acceptance differences between clients based on their demographic characteristics.

In fact, by reviewing previous studies conducted on IB and trust, they seem only to focus on technology adoption and related factors rather consider the client's point of view and limited interest has been given to the factors which impact IB acceptance and trust from the perspective of bank clients. Thus, perceptions and attitudes of bank clients’ towards the acceptance and trust of IB will be examined in this study, involving the clients’ feelings, attitude and build-up of trust towards the technological innovation, which can direct them to the acceptance or rejection of IB (Susanto et al., 2013).

### *1.2 The Research Context*

This research focuses on the acceptance and trust of using IB. It will be done in Libya, involving Libyan bank employees and clients in the study. The chosen participants will be females and males in the age group of 18 and above. The study will be narrowed to looking at the Gumhouria Bank, because it is the first and biggest Libyan bank to use IB. Moreover, this bank is typical of Libyan banking overall. This bank will help to understand the different views of Libyan banking employees and clients', what are the main factors towards IB and how this bank can satisfy its clients. Understanding factors impact to accept and trust of use IB will help the bank to improve its service performance and build good relationship between the bank and its clients.

### *1.3 Study Objectives and Purpose*

This study will try to fill the gap in previous studies conducted in the Libyan banking sector and to improve a framework to develop the Libyan banks' clients' acceptance and trust of IB by focusing on the factors that affect the use of IB. Because of the lack of integration of IB, the majority of banks in Libya have missed effective strategic chances to present value that promotes clients' use of IB. Specifically, the objectives of the study are to achieve the following for the purpose of answering the research question:

❖ To examine IB and the different challenges and issues impacting clients' trust on IB.

❖ To explore whether the strategies for technology adoption and uses for IB could influence clients to trust it.

❖ To examine the roles of acceptance of and trust in the IB system in the banking sector of Libya, from the case study of Gumhouria Bank, and determine a structure for the development of clients' confidence to IB in the system of Libyan banking.

❖ To examine whether the framework that was specified could develop clients' trust in IB in Libya by analysing questionnaire data obtained from Libyan banks' clients.

### *1.4 The Research Question*

***How to improve the Libyan client's acceptance and trust of using internet banking technology and, by doing so enhancing the performance of Libyan banks.***

This question will be answered by investigating the following issues:

❖ What factors are considered by Libyan clients in Internet banking? In what ways can these factors impact their trust of Internet banking?

❖ What is the role of clients' acceptance and trust of Internet banking?

❖ Are there any perceptions and acceptance differences between client segments on the basis of their demographic characteristics?

### *1.5 Research Justification*

From an academic point of view, a careful study of the available literature reveals that there is a vast gap in previous studies in the Libyan context because of the novelty of IB; thus, by reviewing a wide range of literature, it turns out that there have not been many previous studies conducted on client perspectives and perception of IB quality. According to Central Bank of Libya (2008), the number of banks in Libya is approximately sixteen. As mentioned earlier, the use of IB in Libya is still in its early stages, despite it being one of the wealthiest countries in Africa (Touati, 2008). Furthermore, only a few studies have been done in this field or on clients' acceptance and trust of IB, which leads to enhancing the performance of Libyan banks; therefore, by putting these concepts together and researching them will make this study more important and necessary. In addition, the long geographical distances between the Libyan banking sector and its branches is another important motive to do this study, hence its importance.

## *2. BACKGROUND OF INTERNET BANKING IN LIBYA*

### *2.1 Internet Banking in Libya*

The Libyan banking sector has used Internet services (limited services) with clients since 1999 with limited services such as consultations and bill payments (Al-Mabrouk and Soar 2009; Twati 2008). The number of Internet users is increasing regularly. It jumped from 1000 users in 2000 to 2.4 million users in November 2015, comprising of 37.4% of the Libyan population (Internet World Stats 2015). The rate of IB usage is very minimal at present, and many commercial banks are attempting to provide more services such as fund transfers, account management and online shopping, etc. but there are many barriers affecting both the banks' development of services/products and clients' acceptance and trust of IB. Significant barriers are the weak infrastructure and the shortage of bank employees' skills in using IB and the lack of education and technological knowledge on the part of the banks' clients (Touati, 2008; Twati 2008).

## *3. LITERATURE REVIEW*

### *3.1 What is Internet Banking (IB) and how did it develop?*

In the 1980s, innovation in IB made it easier for individuals to manage their money; such as bill payment and sending transfers. The Online Banking Report (2015) reported that in 1994 IB was built into Microsoft Money personal finance software, which enabled 100,000 clients to start accessing their accounts via the Internet. In December 2001 eight US banks had 1m online users each. Moreover, between 2005 and 2007 banks operating without any physical branches appeared and started to provide their services online, such as e-Trade Bank (US) and HSBC First Direct (UK). IB was available on smart phones and tablets; the system puts clients' banks in their pockets. In 2012, Barclays launched a mobile banking app called Pingit which enabled clients to send money using just a mobile number. In 2014 the payment system enabled clients of different banks to send and receive payments using their smart phones (The Telegraph 2016).

This has moved the banking sector from traditional to online delivery methods, influencing banks' business activities as well as clients' satisfaction. Moreover, Aladwani (2001) defined IB as allowing clients to implement a large number of banking transactions electronically through the website of the bank. More recently, studies conducted by Bhosale and Bhosale (2015) and Mohamed and Mohammed (2012) have indicated that IB is one of the most effective technologies for delivering a fast response in terms of banking products and services to existing and potential clients via electronic communication channels, which in turn leads to significant benefit and convenience of transactions as well as improving banks' efficiency and competitiveness.

### *3.2 Advantages and Disadvantages for Banks*

Karim and Hamdan (2010) reported that Internet banking offers many benefits to the banks by providing banking information and services that are available 24 hours and 7 days, and self-service functionality which reduces costs and requires fewer employees. The costs of online transactions are dramatically low when done via the Internet compared to traditional banking services, so banks could save approximately 50% of their costs through the use of IB (Robinson 2000). It also helps banks to reduce physical trade barriers by giving opportunities to banks to increase market access and trade efficiency; moreover, it enables banks to minimise a number of traditional

interactions with clients, leading to enhanced banking services and the maintenance of good relationships with their clients. Also, the clients do all of the work themselves so the number of employees can be reduced (Khalfan and Akbar 2006, Krauter and Faullant 2008).

On the other hand, IB also has some drawbacks, which are:

**High costs:** Sohail and Shaikh (2008) highlighted that the initial costs of carrying out Internet banking are always high, as more skilled staff are needed to operate the more advanced delivery system, and there are also security costs to protect clients' account information.

**Service issues:** Koskosas (2011) further adds that IB may not be able to provide financial services such as brokerage accounts and insurance. Another issue is that there is a lack of governmental policy to guide IB activities across international borders, which leads to an increased risk of money laundering and cybercrime.

***3.3 Advantages and Disadvantages for Clients***

According to Jayawardhena and Foley (2000), IB has brought several advantages to the clients in terms of providing services that fit into the lives of clients such as usability, saving time, and convenience. The studies of Nasri and Charfeddine (2012) and Seyal and Rahim (2011) give more detail by suggesting that IB increases clients' satisfaction by providing the ability to access their accounts, security, easier and faster banking transactions, and enhancing client awareness of IB services, all of which enables clients to make positive decisions to adopt electronic services, because IB has eliminated several interaction obstacles between clients and banks (e.g. clients avoid travelling to and from the bank's branch) by removing barriers such as time and location, and this has a positive influence on clients' satisfaction.

According to Johnson and Media (2016), these days almost all banking transactions can be done via the Internet. Despite the benefits of IB (for example, avoiding long queues and time saving), a large number of clients still prefer the more traditional banking form. Usually, the reasons stem from drawbacks that are incurred when using Internet banking, which in turn impact clients' acceptance and trust of IB. These include:

Computer know-how: conducting Internet banking transactions such as bill payments via the Internet requires knowledge about the Internet and basic computer skills, but

computer literacy is not common to everyone, particularly elderly people who might have some difficulty in dealing with computers (Abukhzam and Lee 2010).

Security concerns (see section 3.4.2), and Internet connection (see section 3.5.3).

### *3.4 Factors Affecting Clients' Acceptance and Trust in Internet Banking:*

#### *3.4.1 Trust and Internet Banking*

Nowadays, the Internet is a significant instrument used by many people in daily life, from shopping and paying bills to banking. Globally, IB is a growing field in the e-commerce area. Trust in these technologies is a cause of growing concern with online transactions, and it has also been determined as having an impact on users' readiness to engage in online exchanges of sensitive information and money (Nilsson et al. 2005). Ba and Pavlou (2002 p. 245) defined trust as "the subjective assessment of one party that another party will perform a particular transaction according to his or her confident expectations, in an environment characterised by uncertainty".

According to Popoola and Arshad (2015), trust plays a vital role in the acceptance and use of IB; thus, implementing appropriate approaches to create clients' trust is fundamental for the banking industry. Moreover, the level of trust is associated with a number of elements - namely, privacy/security, technical and legal, reputation and transactions in the banking industry - which in turn affect positively clients' acceptance of IB and build clients' trust.

However, Al-Somali, et al. (2009) argued that despite the advantages of IB, a large number of clients remain reluctant to accept the services, particularly in growing countries. For example, in Nigeria the level of acceptance and trust in Internet banking is relatively low, despite the increasing popularity of IB around the world. The reluctance to accept and trust IB has been attributed to security reasons and a lack of credibility in the system (James 2012).

#### *3.4.2 Security*

According to banking literature, security (e.g. fraud and denial of service and intrusion) is the massive problem in Internet banking services for both clients and banks, and it appears to be an important factor related to distrust and a significant barrier to IB usage (Kasemsan and Hunngam 2011, Sathye 1999). Suh and Han (2003) indicated that although the number of Internet users has increased dramatically around the world, trust and security challenges still continue.

Hutchinson and Warren (2003) through empirical observation explored the factors preventing an increase of e-banking in Australia and found the key factor to be security concerns. Furthermore, security has a positive and significant influence on trust and usage of online services (Rotchanakitumuuai and Speece 2003, Sathye 1999, Wang et al., 2003).

Therefore, Cheng et al. (2006) highlighted that clients are more likely to trust and use IB when they realise that there is no risk that can affect their bank accounts or privacy information. PI, Shih-M et al. (2012) studied the factors that influence clients' acceptance and trust in online transactions and illustrated that trust in a website affects usage intentions and online transactions. Also, Twum and Ahenkora (2012) considered that satisfaction and continued usage of IB are highly affected by trust in the provider. For example, Karim et al. (2009) stated that in the early years of IB at Barclays there was a serious security issue when clients opening their accounts via the Internet could have left their accounts open to abuse, as a result of a security mistake in the IB system of the bank.

***3.4.3 Privacy***

Generally, Belanger et al. (2002) stated that privacy and security are mixed together in many studies, and few studied have investigated their different influences due to the high correlation between privacy and security. Privacy is defined as the capacity to control and manage the data of clients through procedures and programs to guarantee the safety and confidentiality of their information.

Jahangir and Begum (2008) found privacy to be a significant barrier to IB usage, which influences the use of IB, and this is true because although clients' trust in their selected bank is strong, their trust in online services is still weak. For example, in 2000 Barclays bank stopped its IB service for about four hours during a security system failure that enabled the bank's clients to see other clients' account details.

According to Nasri and Charfeddine (2012), the client is increasingly concerned about the personal privacy issue, which can directly generate a negative impact on the client's attitudes towards the intention to use IB. However, Riquelme and Román (2014) argued that research has resulted in inconsistent findings related to the influences of privacy on clients' online trust. For example, studies conducted by Dolatabadi and Ebrahimi (2010)

and Hu et al. (2010) stated that privacy has a positive and significant influence on trust and usage of online services.

### *3.5 Factors Influencing Internet Banking Acceptance and Trust Related to Libyan Context*

There are a number of factors seen to be affecting clients' acceptance and trust in using IB. It is important to consider these factors which discussed in Section 3.4. For this reason, this study has examined extra factors related to Libya, which are included in the model, as discussed below. In addition, the trust and security factors that were discussed earlier will be entered into the model and are expected to significantly predict clients' trust and usage of IB.

#### *3.5.1 Perceived Usefulness (PU)*

A client is more willing to accept and use IB when he/she believes that the IB services provided would prove to be useful and valuable in the long term (Davis 1989, Hsun Ho and Ko 2008). Thus, PU will impact directly or indirectly on the customer's intentions to accept and usage IB; therefore, this can improve a bank's performance. Furthermore, Cheong and Park (2005) added that PU has a direct and positive impact on IB intentions, and is also an important element in the client's intention to use IB.

#### *3.5.2 Perceived Ease of Use (PEOU)*

According to Davis (1989), PEOU is referred to the degree to which the potential client expects using the process of IB to be free of effort, in terms of understanding and better services (Davis 1989). Various other studies have empirically stated that there is a positive relationship between PEOU and attitude towards use of IB. This means that PEOU is expected to have a positive effect on clients' perceptions of credibility in their interactions with IB (Hong, et al. 2002).

Poon (2008)'s study found that PEOU has a positive influence on client's attitude to use IB. Hence, clients are more likely to trust IB if it is easy to learn and to use in operations and less threatening to the clients; this could contribute to improving work performance.

#### *3.5.3 Quality of the Internet Connection*

Hoq and Amin (2010) suggested that to encourage clients to accept and trust Internet banking, there are different activities that banks need to improve. IB is seen as the key channel through which to deliver banking services, and Internet connection quality is a key factor for any Internet-based application. Quality of Internet connection is also

commonly known as a critical requirement for clients' acceptance and use of IB. Moreover, Internet connection quality is important as it determines the client's capacity to trust and use IB, because without a suitable and effective Internet connection the use of IB will be more difficult (Hunaiti and Al-Nawafleh 2009, Twati and Gammack 2006).

### *3.5.4 Awareness of Services and their Benefits*

Pikkarainen et al. (2004) mentioned that the level of awareness and information provided about IB services from banks and their advantages are key factors in motivating clients to use bank services online. Furthermore, the studies of Howcroft et al. (2002) and Sathye (1999) revealed that a lack of awareness about the benefits of IB is a determinant causing clients to reject or reluctantly use the IB services offered by banks. In addition, Juwaheer et al. (2012) supported this, agreeing that awareness of this factor needs to be taken into account before adopting any services/products.

### *3.5.5 Demographic Characteristics (Age, Gender and Education)*

Demographic components are found to be linked to the adoption and use of various banking channels in general, and IB in particular (Sathye 1999). Akinci et al. (2004) determined that males tend to use IB more than females. Their findings in Turkey show that middle-aged clients are more likely to use IB than younger and elderly clients.

Age is one of the crucial factors affecting a client's trust in the use of IB. Older people seem to be reluctant to accept technological innovations because they have negative attitudes towards the use of IB (Wang et al. 2003). Juwaheer et al. (2012) reported that compared with younger people, who are more likely to accept and trust IB, they are less interested in conducting activities via the Internet, such as searching for new products. However, Zhang (2005) disagrees with this view, adding that it is an incorrect assertion that younger people have more knowledge about IB and older people are reluctant. In their study, Al-Somali et al. (2009) revealed that age did not impact on clients' behaviour, because it was not connected with attitudes towards using IB.

According to Sun and Zhang (2006), it is interesting to note that there are differences in the way men and women use various kinds of technologies. The acceptance and trust in using IB and its characteristics depend on the gender of the individual. However, recently many studies have indicated that these differences (gender gap) are decreasing.

Some even revealed that there are no statistically noteworthy differences among the two genders concerning the use of IB (Eurostat, 2011).

In the context of technology, the level of education plays a significant role in terms of attitudes towards IB use. Various surveys have illustrated that a higher level of education positively affects the decision to accept and trust IB (Jayawardhena and Foley, 2000, Karjaluoto 2002). Highly educated clients commonly accept changes in technology more enthusiastically, and they are also more likely to accept IB, because education is positively correlated with their attitudes to use IB (Cheng et al., 2006, Juwaheer, et al. 2012).

## *4. TTEORETICAL FRAMEWORK*

Based on the literature review, the hypothesis in this research is that IB usage by banks influences clients' acceptance and trust in IB and the performance of banks. This study conducts through proposing a model, which is used to improve clients' acceptance and trust of IB use.

### *4.1 Technology Acceptance Model (TAM)*

Users' acceptance and trust are the greatest impediment to the success of IB. Davis (1986) introduced the best model to predict the acceptance and trust of using IB within banks. The TAM model is directly specified by behavioral intentions to use, which is affected by clients' attitudes towards using the technology and the system usefulness. Furthermore, the TAM has provided a basis for tracking the impact of external factors on internal attitudes, beliefs and behavior (Davis et al. 1989).

According to Al sajjan and Dennis (2010) and Yaghoubi and Bahmani (2010), client perceptions in this model are evaluated based on these main factors; namely, Perceived Usefulness and Perceived Ease of Use. Moreover, Ying and Zhang (2010) give more detail by suggesting that PU has a directly impact on the intention to utilize and adoption IB, while PEOU has no direct influence on PU or on the behavioral intention. The main advantage of using TAM to understand model usage behavior is that it provides a framework by which to test the influences of external variables on the model in order to enhance its usage (Pikkarainen et al. 2004).

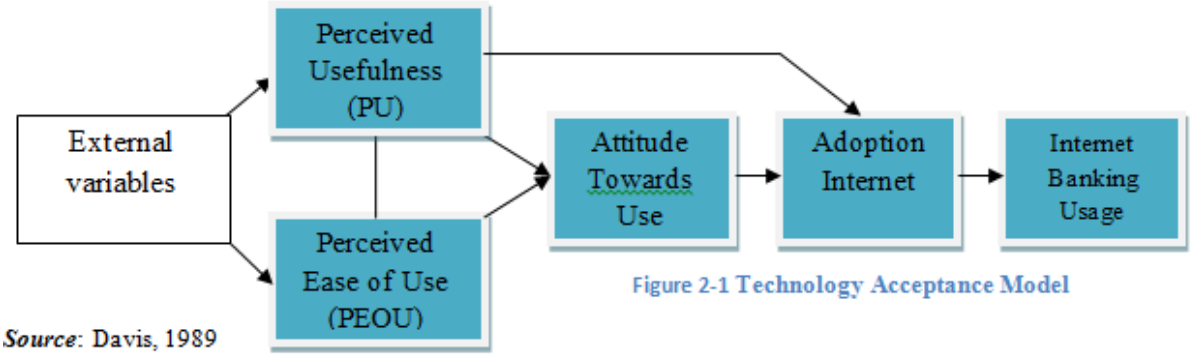


Figure 2-1 Technology Acceptance Model

*Source*: Davis, 1989

## *5. RESEARCH METHODOLOGY*

### *5.1 Data Collection*

One of the most important steps in this research is data collection. The researcher needs to find out the average number of clients and employees' perceptions and attitudes towards trust in using IB in Libya. Saunders et al. (2006) indicated that there are two sources of data, which are primary and secondary data. In this study primary data was used to examine the relationship between variables to achieve study objectives, by using the questionnaire survey as a tool to gather these data.

### *5.2 Research Instrument*

The questionnaire was adopted as the instrument in this study. According to Hair (2007), in order to achieve a successful and comprehensive questionnaire it is important to consider what questions are to be asked under the research problem, and to determine the format of each question and how it will be worded. In addition, the questionnaire also had an open-ended qualitative part included at the end to gather the participants' opinions about their IB patterns. It is important to mention that the questionnaire was translated into the Arabic language because Arabic is the primary language in Libya and the participants may not have been able to answer an English questionnaire.

### *5.3 Data Analysis*

The primary data was gathered through the questionnaires and will be entered into Statistical Package for Social Science version 23 (SPSS) software for analysis. SPSS is used due to its capacity for analyzing and comparing variables and analyzing large amounts of data. It also allows the researcher more in-depth analytical results which will help to prove the hypotheses and test the conceptual framework.

### *5.4 Sample Size*

Based on the research objectives and questions, it is essential that the research sample consists of the Libyan banks' clients/employees who work and use IB to conduct their transactions with Gumhouria Bank. These respondents comprise the most convenient sample for determining the perceptions of clients towards acceptance and trust in IB usage. The sample size used for this study is seventy respondents. This sample size meant that 20 employees were conveniently chosen from Gumhouria Bank and 50 clients from the bank.

### *5.5 Research hypotheses*

**H1.** Awareness of IB services and its benefits has a significant impacting on clients perceived Usefulness in the banking sector of Libya.

**H2**. Internet connection quality has a significant impacting on clients perceived Ease of Use in the banking sector of Libya.

**H3**. Client's trust has a positive influence on client attitude towards using IB in the banking sector of Libya.

**H4**. Security has a positive influence on client attitude towards using IB in the banking sector of Libya.

**H5**. Age has a positive influence on client's attitude toward using IB.

**H6**. Gender has a positive influence on client's attitude toward using IB.

**H7**. The level of education has a positive influence on client's attitude toward using IB.

**H8**. PU has a significant impact on client attitude towards using IB in the banking sector of Libya.

**H9.** PEOU has a positive impact on client attitude towards using IB in the banking sector of Libya.

## *6. DATA ANALYSIS*

### *6.1 Data Analysis*

In all, 70 questionnaires were given to employees and clients of Gumhouria Bank and were divided into 20 for employees and 50 questionnaires for clients. Table 6.1 shows a summary of the response rate.

**Table .خطأ! لا يوجد نص من النمط المعين في المستند-1 Response Rate.**

| Items | Given | Returned | Percentage % |
|---|---|---|---|
| Clients | 50 | 31 | 62% |
| Employees | 20 | 14 | 70% |
| Total | **70** | **45** | **64.3** |

*Source: field study*

According to the table above, 45 out of 70 questionnaires were successfully completed. This means 64.3% of the participants returned the questionnaires. Thus, this percentage will be acceptable for the analysis to continue.

***6.2 Demographic Characteristics of Respondents***

The demographic characteristics of the participants who answered the questionnaire as IB users from both employees and clients of Gumhouria Bank are presented in Figure 6.1. It indicates that the majority of respondents were males by 62.2%, while 37.8% were female in the sample of IB users, which may be due to males having more interest in and exposure to interactions with IB or for cultural reasons (Emzio, 2010; Yiu et al., 2007). The majority of the participants within the age range of 26 to 45 years as IB users was 77.8%, followed by 13.3% of 46 to 59 years and 8.9% of 18 to 25 years, respectively.

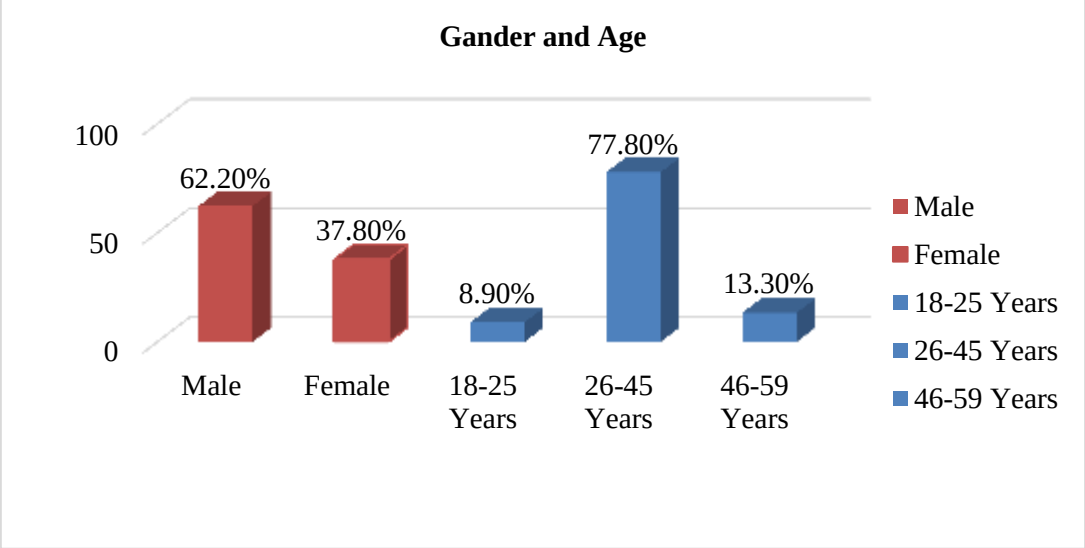


**Figure .خطأ! لا يوجد نص من النمط المعين في المستند-1 Gander and Age**

In regards to education level, Figure 6.2 below indicates that:

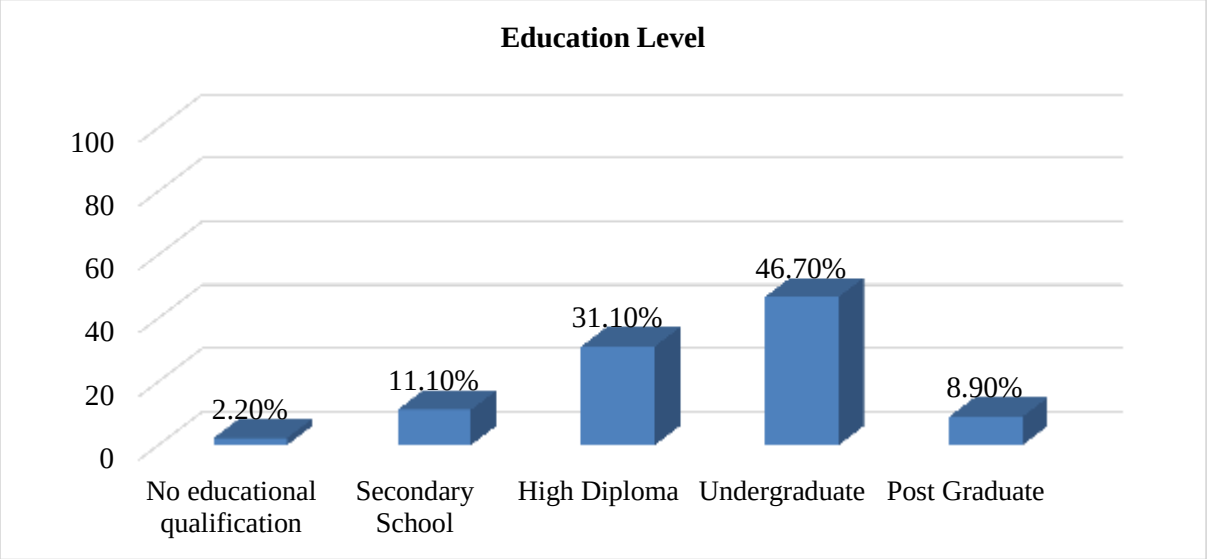


**Figure** .خطأ! لا يوجد نص من النمط المعين في المستند-**2 Education Level**

The majority of the participants had undergraduate education level by 46.7%, followed by the high diploma at 31.1% and 11.1% had secondary school education, while only 8.9% had a post-graduate level and 2.2% were without any formal education. As the majority of participants had an undergraduate degree, it shows the general relationship between the level of education and IB acceptance and trust.

With respect to Internet access, the majority of the respondents, 86.7%, had access to the Internet from their homes, followed by 8.9% from their workplaces and 4.4% who had no Internet access due to individual circumstances such as income having a home PC, age, ability to use a computer and the level of education, and also weakness of infrastructure and distrust of using banking via the Internet (Nasri and Charfeddine, 2012).

### *6.3 Descriptive Analysis of Response*

In this section, the attention turns to how respondents answered the questionnaire questions (see Appendix 1) after describing their demographic characteristics and the period for which they have used IB.

#### *6.3.1 Perceived Usefulness*

The participants were asked to show their opinions about the benefits they currently obtained by using IB. Usefulness was subdivided into four sub-items and was measured by five-point Likert (see Appendix 1, Q7).

**Table** .خطأ! لا يوجد نص من النمط المعين في المستند-**2 Perceived usefulness**

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **Perceived Usefulness(PU)** | Q7 | PU1 | 15.6% | 4.4% | 13.3% | 31.1% | 35.6% |
| | | PU2 | 13.3% | 2.2% | 24.4% | 31.1% | 28.9% |
| | | PU3 | 11.1% | 4.4% | 17.8% | 31.1% | 35.6% |
| | | PU4 | 11.1% | 4.4% | 22.2% | 28.9% | 33.3% |

*Source: Questionnaire findings*

The four statements assessed participants' usefulness of IB. The outcomes illustrate that: A total of 35.6% of participants strongly agreed that IB enables them to complete their transactions faster, and 31.1% agreed that the financial resources can be managed more efficiently through using IB. In addition, 35.6% strongly agreed that IB allows them to develop performance of using banking services, and 33.3% of respondents strongly agreed that IB fits well with their lifestyle.

### *6.3.2 Perceived Ease of Use*

PEOU is related to the capacity of clients to know everything, anywhere, at any time and their ability to deal with bank transactions (Hong et al., 2002; Flavian et al., 2006).

**Table 6-3 Perceived ease of use**

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **Perceived Ease of Use(PEOU)** | Q8 | PE | 8.9% | 6.7% | 13.3% | 37.8% | 33.3% |
| | | PE | 6.7% | 2.2% | 20% | 40% | 31.1% |
| | | PE | 4.4% | 20% | 35.6% | 24.4% | 15.6% |
| | | PE | 11.1% | 11.1% | 24.4% | 33.3% | 20% |

*Source: Questionnaire findings*

Table 6.3 above suggests that 37.8% of respondents agreed that IB is easier for them to conduct their transactions, and also 40% agreed that IB is an appropriate way to manage their financial resources. However, 35.6% were neutral and this may be explained by them not using IB or due to lack of knowledge of how to perform the transactions. 33.3% agreed that interaction with IB does not require a lot of mental effort to be clear and understandable for them.

### *6.3.3 Quality of Internet Connection*

This part of the questionnaire asked participants their perceptions about the quality of the Internet and was divided into four sub-items (see Appendix 1, Q9).

**Table** .خطأ! لا يوجد نص من النمط المعين في المستند**-4 Quality of Internet**

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **Quality of Internet(QI)** | Q9 | QI1 | 17.8% | 22.2% | 2.2% | 42.2% | 13.3% |
| | | QI2 | 8.9% | 31.1% | 17.8% | 26.7% | 13.3% |
| | | QI3 | 6.7% | 31.1% | 26.7% | 24.4% | 8.9% |
| | | QI4 | 8.9% | 13.3% | 4.4% | 44.4% | 24.4% |

*Source: Questionnaire findings*

Table 6.4 shows that 42.2% of respondents agreed that their access to the Internet was easy; this may refer to good infrastructure being available for them. However, 31.1% disagreed that the Internet enabled them to conduct their financial transactions accurately via the Internet. In addition, 31.1% disagreed that using the Internet to handle their transactions was efficient, while 44.4% agreed that the Internet allowed them to access the bank's Website 24/7.

### *6.3.4 Awareness of Internet Banking Services and its Benefits*

Awareness of IB services is presented in Table 4.5 and contains five items (see Appendix 1, Q10) to obtain the opinions of participants about awareness of IB services provided by their bank.

Table 6-5 Awareness of IB services and its benefits

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **Awareness of IB Services(AW)** | Q10 | A | 15.6% | 31.1% | 20% | 26.7% | 4.4% |
| | | A | 8.9% | 26.7% | 15.6% | 37.8% | 8.9% |
| | | A | 13.3% | 24.4% | 4.4% | 42.2% | 13.3% |
| | | A | 13.3% | 22.2% | 8.9% | 44.4% | 8.9% |
| | | A | 11.1% | 28.9% | 11.1% | 22.2% | 22.2% |

*Source: Questionnaire findings*

Table 6.5 indicates that 31.1% of respondents disagreed that their bank's promotional offers about IB were not attractive to them. 37.8% agreed that they received sufficient

information about IB services/products, and also 42.2% agreed that they received enough information about IB benefits. 44.4% agreed that they had received sufficient information about how to use IB. However, 28.9% disagreed that their bank had never given any information about IB.

***6.3.5 Trust***

This question of the questionnaire was to examine the participants' trust of using IB. The main idea behind this question was to check participants' level of trust and to see at which level they were able to trust and use IB. It contained four items (see Appendix 1, Q11).

**Table** .خطأ! لا يوجد نص من النمط المعين في المستند**-6 Trust**

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **Trust (TR)** | Q11 | TR1 | 26.7% | 15.6% | 20% | 17.8% | 13.3% |
| | | TR2 | 28.9% | 11.1% | 24.4% | 26.7% | 6.7% |
| | | TR3 | 22.2% | 20% | 24.4% | 31.1% | - |
| | | TR4 | 22.2% | 17.8% | 26.7% | 26.7% | 4.4% |

*Source: Questionnaire findings*

According to Table 6.6, 26.7% of respondents strongly disagreed that IB is trustworthy, and also 28.9% strongly disagreed that IB is able to protect their privacy information, while 31.1% agreed that they were confident in using IB, even if no one shows them how to use it. The TR4 item has the same percentage (26.7%) in the neutral and agree scale about respondents trusting their bank as a reliable service provider.

*6.3.6 Security*

The security question is presented in Table 6.7 and contains four items (see Appendix 1, Q12) which asked the participants their opinions about how secure IB is in their bank.

**Table** .خطأ! لا يوجد نص من النمط المعين في المستند**-7 Security**

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **Security (SE)** | Q12 | SE1 | 24.4% | 22.2% | 37.8% | 11.1% | 2.2% |
| | | SE2 | 15.6% | 31.1% | 22.2% | 20% | 8.9% |
| | | SE3 | 6.7% | 17.8% | 42.2% | 20% | 8.9% |
| | | SE4 | 24.2% | 28.9% | 24.4% | 15.6% | 4.4% |

*Source: Questionnaire findings*

The findings from Table 6.7 show that 37.8% of respondents were not sure or neutral that IB in Libya was secure. 31.1% disagreed that their bank provided 24 hours and 7 days secure and reliable access to IB. 42.2% were not sure about their bank being able to protect information concerning their IB transactions. 28.9% disagreed that issues of security have no influence on using IB.

### *6.3.7 Attitude Towards Use*

This part asked the respondents about their feelings and intentions of using IB to conduct banking transactions, currently and in the future. It contains three items.

**Table 6-8 Attitude towards use**

| | | | Strongly disagree | Disagree | Neutral | Agree | Strongly |
|---|---|---|---|---|---|---|---|
| **Attitude To Use (ATT)** 9 | Q13 | ATT | 8.9% | 8.9% | 15.6% | 44.4% | 22.2 |
| | | ATT | 8.9% | 8.9% | 15.6% | 37.8% | 28.9 |
| | | ATT 3 | 6.7% | 4.4% | 17.8% | 31.1% | 40% |

*Source: Questionnaire findings*

Table 6.8 shows that 44.4% of respondents agreed that IB was a positive experience for them, and also 37.8% agree that they intended to use it regularly to implement their banking transactions. 40% were intending to boost their use of IB in the future.

### *6.3.8 Open-ended Questions*

This question asked the respondents if they had any further comments about aspects of the Libyan banking system's adoption and use of IB. It will briefly discuss some important points. In fact, there were some very important comments from both clients and employees. Some of them related to usefulness, ease of use and security. The majority of respondents stated that IB is a good method of implementing and managing transactions and saving time, and also the website of their bank was easy to use and clear. On the other hand, one of the comments related to availability of IB services. Some respondents did not use IB because their bank branch did not provide an IB system within its banking services, and some used it, but in limited services and felt it

was inefficient due to lack of employee training on how use the system, a lack of infrastructure and quality of the Internet. Other respondents were somewhat concerned about security issues; they did not trust IB 100% because of problems related to the Internet such as fraud, hacking and identity theft. However, some of them were more optimistic about using IB regularly to perform their banking transactions in the future because they had been using IB for a long time without any issues.

### *6.4 Statistical Analysis*

#### *6.4.1 Test of Research Hypotheses*

In examining the hypotheses, Spearman correlation was implemented, because it is a common technique for questionnaire data analysis and the data are ordinal, so it was suitable to use, and also to assess the statistical significance of the correlations between variables. The structural model for this study was examined by using a simple linear regression technique. The variables examined are presented in Figure 4.5 to give a pictorial view and for a clearer understanding. (Figure 6.3)

**Figure 4.6**

Proposed research model

The extended TAM

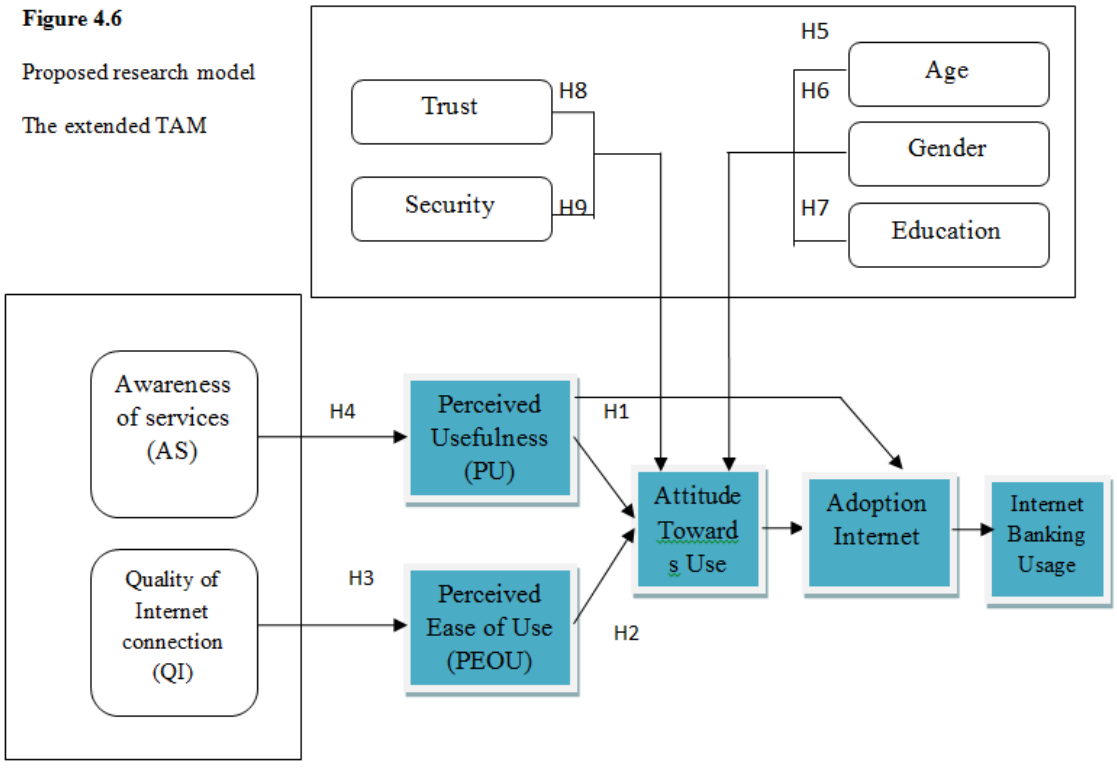


**Figure 4-6 Proposed Research Model**

To briefly explain Table 6.9 below, correlation and regression analysis were used to examine the influences of independent variables in predicting the attitude towards use of IB as the dependent variable. There are nine variables with significant statistical support. AW is correlated with PU and QI is correlated significantly with PEOU. Furthermore, the basic TAM constructs, PU and PEOU, are correlated with ATT. Trust and security are also correlated with ATT (see Figure 6.6). The table below presents the results of the correlation and regression employed to estimate the influence of independent variables on client attitude to use IB.

**Table** .خطأ! لا يوجد نص من النمط المعين في المستند-**9 Results of hypothesis testing**

| No. | Hypothesis Path | $R^2$ | Path Co-efficient (β) | *p*-Value | Results | Notes |
|---|---|---|---|---|---|---|
| **H1** | *AW-PU* | 0.004 | 0.163 | 0.292 | Not | Positive |
| **H2** | *QI-PEOU* | 0.473 | 0.664** | 0.000** | Supported | value |
| **H3** | *TR-ATT* | 0.020 | 0.105 | 0.499 | Supported | Significant |
| **H4** | *SE-ATT* | 0.000 | -0.078 | 0.613 | Not | Positive |
| **H8** | PU-ATT | 0.370 | 0.587** | 0.000** | Supported | value |
| **H9** | PEOU-ATT | 0.329 | 0.570** | 0.000** | Not | Negative |
| | | | | | Supported | value |
| | | | | | Supported | Significant |
| | | | | | Supported | Significant |

*Source: SPSS Note*: **Correlation is significant at the 0.01 level (2-tailed)

The results obtained from the correlation and regression procedure show that ($R^2$=0.004). This means AW accounted only for 0.4% of the variance in PU, so a 99.6% variation PU is explained by other factors; thus AW does not explain a lot. There was positive correlation between AW and PU, but, regarding to the strength, the relationship is relatively weak. Path coefficients show that AW has a positive impact on PU (β=0.163, *p*=0.292) greater than 0.01. Thus, H1 is not supported. However, QI significantly and positively impacts on PEOU ($R^2$=0.473, β=0.664, *p*<0.0005), meaning that H2 is supported. Results reveal that TR has a positive influence on ATT (β=0.105, *p*=0.499), which explains

($R^2$ =2%) of the variance. This is greater than 0.01, thus, H3 is also not supported. As indicated in Table 6.6.2, SE has a negative influence on client ATT using IB ($R^2$=0.00%, β=-0.078, $p$=0.613), thus not supporting H4. The security factor accounted for zero percent of the variance of attitude towards use of IB.

Additionally, PU and PEOU (basic TAM relations proposed by Davis, 1989) significantly and positively influenced client attitude towards using IB at ($R^2$=0.370, β=0.587, $p$<0.0005) and ($R^2$=0.329, β=0.570, $p$<0.0005), respectively. Thus, H8 and H9 are supported. These results confirm the TAM relationships hypothesized by Davis (1989).

### *6.4.2 Overall Client Attitude Towards Using IB Does Not Differ Based on Demographic Characteristics.*

As mentioned in the literature review, Section 3.5.5, age, gender and education have positive influence on client acceptance and trust of using IB. The study used Fisher's exact Chi Square test (sig. Level 0.05) to examine the influence of demographics as independent variables on client attitude towards using IB as dependent variable. Due to nominal data for each variable and small sample size of the study, the test was used to see the impact of the demographics on client acceptance and trust of using IB.

**Table** .خطأ! لا يوجد نص من النمط المعين في المستند**-10 Demographics and Overall Client Attitude towards using IB**

| No | Hypothesis Path | Fisher's Exact Sig | Results | Notes |
|---|---|---|---|---|
| H5 | ***Age-ATT*** | **0.041** | **Not Supported** | **Positive value** |
| H6 | ***Gender-ATT*** | **0.028** | **Not Supported** | **Positive value** |
| H7 | ***Education-ATT*** | **0.127** | **Supported** | **Positive value** |

*Source:* SPSS *Note: The significance level is 0.05*

From the study results, Fisher's exact test on age is weak and low (0.041, $p$<0.05), indicating that the hypothesized direct impact was not supported, as

proposed in the study's conceptual model; thus, H5 is rejected. Moreover, gender has no impact on ATT to use IB (0.028, $p$<0.05). Thus, H6 also is rejected. Finally, education variable has a significant impact on ATT to use IB (0.127, $p$>0.05). Thus, H7 is supported.

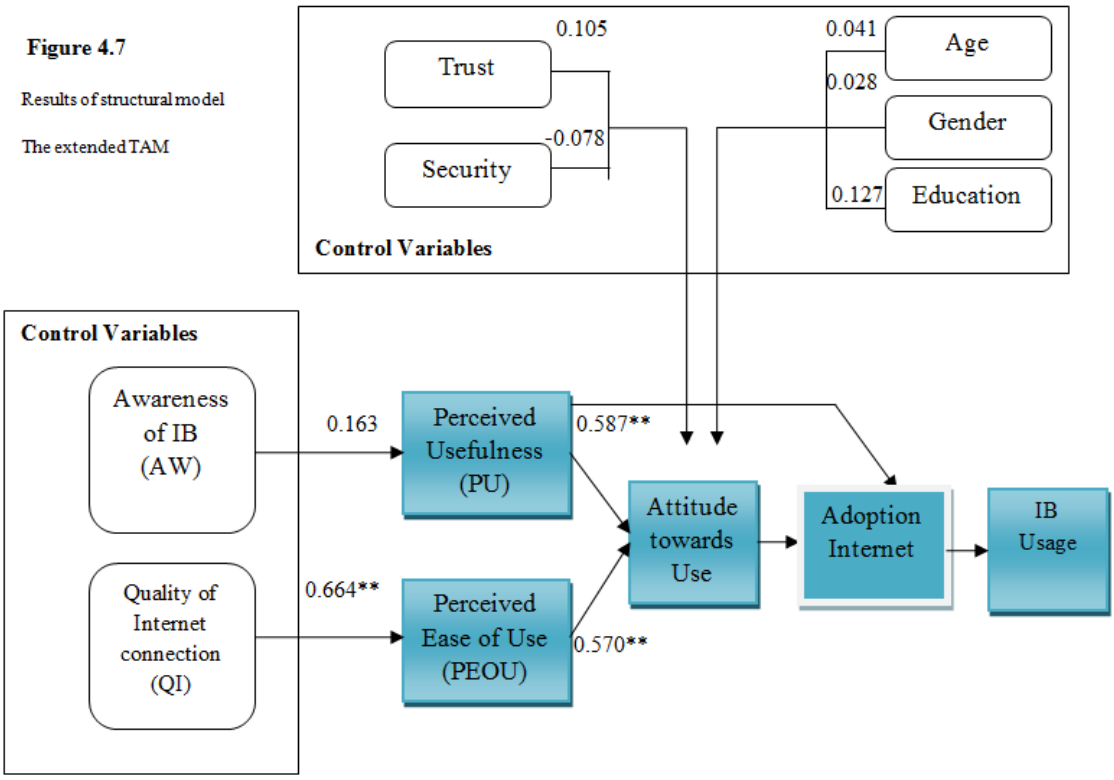


**Figure 4-7 Results of Structural Model**

Figure 6.4

## *7. DISCUSSION OF FINDINGS*

### *7.1 Demographic Characteristics and Internet Banking Access*

The results obtained from the questionnaires indicate that males (62.2%) and females (37.8%). The high percentage for males was expected in this study, because Libya considers itself as a country where Arabian cultural values are dominant, and, also, Libya is a male-dominated country. This is consistent with the findings of Akinci et al. (2004) which stated that the banking sector in Turkey determined that more males tends to use IB services than females. In contrast, this study identified that males and females had similar perceptions towards using IB.

The results showed that age did not exert any impact on clients' attitude to using IB. Therefore, this study deduces that age is an irrelevant construct impacting the use of IB, this supports the findings of Zhang (2005) and Al-Somali et al. (2009) who revealed that age did not impact on clients' behaviour, because it was not connected with attitudes towards using IB.

It is also interesting to note that gender has no influence on clients' attitude towards using IB. This is consistent with the findings of Chiu et al. (2005) and Eurostat (2011) which reported that there are no statistically noteworthy differences between the two genders concerning the use of IB, and, also, no study has proven that gender has a direct impact on clients using IB. Conversely, these findings refuted the findings of Sun and Zhang (2006) who believed that the acceptance and trust of using IB, its characteristics and use rested on gender.

The results obtained from the Fisher's exact test show that education level has a positive impact on clients' attitude toward using IB. The results indicated that level of education was significantly correlated to ATT (0.127, $p>0.05$), indicating users of IB were more likely to be impacted by their education level in their attitude to use IB. Similar results have been reported by Jayawardhena and Foley (2000), Karjaluoto (2002), Cheng et al. (2006) and Juwaheer et al. (2012), who found that highly educated clients commonly accept changes in technology more enthusiastically, and they are also more likely to accept IB, because education is positively correlated with clients' literacy rates.

The majority of the respondents had access to the Internet from home by 86.7%. This is consistent with the findings of Jaruwachirathankul and Fink (2005), Nasri and Charfeddine (2012) and Joshi and Bansal (2015). In their empirical work, they illustrated that the quality of Internet infrastructure can influence clients' perceptions towards using IB, which could lead to IB being more accepted. Only 8.9% of the respondents used the Internet from their workplaces. The results of this study are in line with those of Sarel and Marmorstein (2006), Gorman (2007) and Johnson and Media (2016). In their empirical work, they argued that Internet access at home and/or work not being available to everyone, maybe on account of the bank's server being down or a slow connection due to lack of Internet infrastructure as well as security concerns which make clients worried about their accounts and funds from malware and hackers.

### *7.2 The Theoretical Model*

This study adopted the Technology Acceptance Model to examine the attitude towards use IB in Libya. It enabled an assessment of how much variance in the dependent variable of the model could be interpreted by the independent variables. Moreover, it allowed testing seven different paths in the research model (see Figure 4.1) and each path represented a proposed hypothesis. The structural model analysis has shown the confirmation or rejection for each hypothesis and comparisons of the influence of different independent variables on the dependent variable.

#### *7.2.1 Awareness of IB Services and Their Benefits: Perceived Usefulness (H1)*

It had been expected that the more the impact of the level of awareness IB services, the more would be the use of IB by the client on a usefulness basis. The results reveal that AW has a positive influence on clients' PU. This is consistent with the findings of Sathye (1999), Howcroft et al. (2002) and Pikkarainen (2004), who found that the level of awareness and information provided about IB services from banks and their advantages are key factors in motivating clients to use bank services online. However, some comments from the participants indicated that they did not receive information about IB from their bank. Meaning that lack of awareness of IB services is a crucial factor in causing clients to reject and reluctantly use the IB services offered by banks. Thus, Gumhouria Bank management and service providers may need to encourage and educate clients about the benefits of using IB services by using enough different types of advertising media, like a promotional mix, e-advertisements, mobile phones and e-mail.

#### *7.2.2 Quality of the Internet Connection: Perceived Ease of Use (H2)*

H2 tested the correlation between QI and clients' PEOU in the Libyan banking sector. The results in the study show that QI has a positive and significant impact on PEOU ($\beta$=0.664, $p$ < 0.000). Increase in QI and PEOU were predictive of an increase in clients' attitude to use of IB, in turn leading to acceptance and trust of IB. This is consistent with similar studies in the literature by Twati and Gammack (2006), Hunaiti and Al-Nawafleh (2009) and Tzer Liu et al. (2011) related to quality of Internet connection and its influence on clients to use IB.

### *7.2.3 Trust: Attitude Towards Use (H3)*

H3 tested the correlation between TR and ATT in the Libyan banking sector. The results indicated that TR has a positive correlation with ATT (β=0.105, p=0.499), meaning the relationship is not very strong. An analysis of the questionnaires identified that clients who do not trust a bank's capacity to offer secure IB services will not have the attitude to use that bank. This result was supported by the findings of by Popoola and Arshad (2015). According to their study, trust plays a vital role in the trust and use of IB. Clients who trust their bank are more likely to use that bank, which increases their continued use of IB and they may recommend the services of IB to others.

However, Al-Somali et al. (2009) argued that, despite the advantages of IB, a large number of clients remain reluctant to accept the services, particularly in growing countries such as Libya; the reason for this result may be due to lack of credibility in the Libyan banking system.

### *7.2.4 Security: Attitude Towards Use (H4)*

H4 tested the correlation between SE and ATT in the Libyan banking sector. It had not been expected that the security factor would not enhance clients' usage of IB. Results from this study show a negative relationship between SE and ATT (β=-0.078, *p*=0.613) factors and clients' use of IB. This is inconsistent with the findings of Sathye (1999), Rotchanakitumuuai and Speece (2003) and Wang et al. (2003), which reported that the more clients perceive their IB service channel as safe to implement their banking transactions, the more they use of IB.

Juwaheer et al. (2012) stated that theft of a client’s private information could cause them to lose trust in the IB system. This finding related to security supported work by Sathye (1999) and Kasemsan and Hunngam (2011). Wang et al. (2003) found that security is one of the leading future challenges of IB. Thus, the study has concluded that the security aspect is an important factor for the acceptance and trust of using IB services in Libya. The security level can be improved in the Libyan banking sector through relying on security features such as encryption biometrics, smart cards or filtering routers, which enable banks to provide more secure IB services and, therefore, reduce the level of security concern in the transactions and increase the trust level of Internet banking.

### *7.2.5 Perceived Usefulness: Attitude Towards Use (H8)*

In relation to H8, PU has a positive and significant influence on clients' attitude towards using IB, as outlined in the current study model ($\beta$=0.587, $p < 0.0005$). Results also evidence the key role of PU in the use of IB. The result is confirmed with the original TAM model, which shows that PU directly impacts on ATT to use IB. Moreover, the result corresponds with the findings of Davis (1989), Cheong and Park (2005) and Hsun Ho and Ko (2008), who found that PU will impact positively and directly on usage IB. Bank management may need to highlight the benefits of using IB services, such as cost and time savings, by educating clients about IB and its benefits via e-advertisements.

### *7.2.6 Perceived Ease of Use: Attitude Towards Use (H9)*

H9 tested the correlation between PEOU and ATT. From the results of the empirical evidence, PEOU has a positive and significant influence on clients' attitude towards using IB ($\beta$=0.570, $p < 0.0005$). This result is consistent with the original TAM model, which shows that PEOU directly impacts on ATT to use IB. Similar results have been reported by Davis (1989), Hong et al. (2002) and Poon (2008), who found that PEOU has a positive influence on attitude to be accepted and used by clients. However, one of the respondents mentioned that the bank was still suffering from a lack of training courses for employees and clients to make the self-service system easier to use, and also there was a lack of skills in the client services office. Thus, the bank should provide clear guidance and enough information to support clients to use IB services.

## *8. CONCLUSION AND RECOMMENDATIONS*

### *8.1 Conclusion*

In the introduction to this study different factors were introduced and the study discussed why these factors were important to the relevant subject in order to investigate the factors considered by Libyan clients as regards using IB and in what ways these factors can impact their trust in IB. In addition, it examined, whether there are any perceptions and acceptance differences between clients on the basis of their demographic characteristics with the goal of providing a comprehensive understanding of Libyan IB to improve the Libyan client’s acceptance and trust of using IB. The distinct role of client acceptance and trust of IB was investigated as regards the

awareness of IB, quality of Internet, trust, security, usefulness and ease of use factors and strengthened the existing literature by testing the various influence of each factor entered in the TAM model. The current study used questionnaire survey to deliver the findings.

### *8.2 Summary of the Research Findings*

Data analysis indicated that quality of Internet, perceived usefulness and perceived ease of use have a positive and significant impact on client attitude towards use of IB. Findings also showed that both trust and security aspects are considered crucial factors to impact client acceptance and trust of using IB. Furthermore, the study findings indicated that level of education has a significant influence on attitude towards use of IB, while age and gender have insignificant impact (see Section 7.1). The results of hypotheses testing provide satisfactory support for the extended TAM through the SPSS analysis. Overall, the findings suggested that the model provides a good understanding of factors that impact client attitude to use IB. In addition, they shed valuable light on a broader understanding of clients' perceptions of IB, which will be beneficial to improve the Libyan client's acceptance and trust of using IB.

### *8.3 Implications and Recommendations*

Implications for research, this study helps to expand the present literature and understand the topic and offers a method for future study. The results of this research present a chance to better understand Libyan clients' perceptions and attitude towards IB. The findings from the current study add value to future research and practice in a broader perspective into the Libyan banking sector and, more specifically, to Gumhouria Bank, to be able predict the acceptance and trust of IB by their clients, and also to understand why the use of IB is still at an early stage of development in the context of Libya. The present study makes a contribution to this field by providing insights into the factors that impact on client acceptance and trust of using IB.

The outcomes of this study revealed that trust and security have positive influence to increase the attitudes to use IB. These factors should be the main focus for banks to build trust and security enhancement activities. Thus, bank management should seek to maintain a good reputation by eliminating any potential security threats. Furthermore, the security system should be continuously enhanced to guarantee the integrity of IB services, as this will build client trust of using IB in the long term.

Bank management may need to provide the necessary training courses for both employees and clients regarding the use of IB and educate them in the advantages associated with IB usage, which will lead to improve the level of trust in IB.

Very noteworthy result is the awareness level being a key construct to impact the use of IB services. This finding highlights that banks need to improve client awareness about IB and its benefits by increasing positive feelings through promoting IB benefits for both current and potential clients. Therefore, bank managers need to enhance client awareness about IB and promote its ease of use, such as 24/7 accessibility and the self-service facility for clients, enabling them to conduct their financial transactions conveniently at home through a secure website, in order to improve banking clients', trust by using different types of advertising media, such as a promotional mix, e-advertisements, mobile phones SMS messages and e-mail.

Furthermore, the Libyan government can help to ensure that there are clear regulations, laws and good Internet infrastructure on IB transactions to improve the use of IB services. This will ensure clients to have more trust in using IB. In addition, the outcomes indicated create a new version of TAM model (see figure 6.3) which suggested that PEOU and PU have a significant and direct influence on attitude towards use of IB. The present study makes interesting contribution to banking knowledge base and practice. It may help banking willing to penetrate the Libyan market for e-commerce and for future research can also examine client attitudes towards mobile banking to establish a comprehensive framework of this line of research.

### *8.4 Limitations of the research*

Limitations associated with the present study are related to the sample size, resources, time and access. This study used a single survey of 70 participants from a single established Libyan bank, which was Gumhouria Bank. The findings may have been further enhanced and more useful if a larger number of respondents and other domestic banks were taken. The response rate was lower than was hoped for, thus the outcomes were less statistically significant, which may have led to reject some hypotheses, which limits the generalization of this study. Please, note that the researcher was seeking to use two banks, namely Gumhouria Bank and National Commercial Bank, to conduct this study, but the National Commercial Bank refused to take part.

Another limitation of this study is that the focus was only on investigating the acceptance and trust of using IB from clients' and employees' perspectives, whereas the perceptions about IB of bank managers or other corporate entities executives have not yet been tapped. The present study did not include all factors which impact client acceptance and trust of using IB in Libya. Thus, future researchers are advised to examine other factors to see how they can impact clients' perceptions about IB and increase the level of trust in IB.

### *8.5 Future Research*

In this respect, further research is clearly needed in order to promote the understanding of IB services in Libya. Therefore, further study with a larger sample size is needed to identify whether the findings of this study generalize to other demographics. The current study was conducted specifically on Gumhouria Bank. Future research could be extended to other Libyan banks to see if this would result in any similarities and differences to this study. The current study used quantitative research to collect data. Therefore, supplementary qualitative research can provide additional evidence to support the existing findings. Future research is advised to enhance the model with other possible independent variables which may significantly impact client attitude towards use of IB and which could improve the capacity to predict client acceptance and trust of using IB in Libya.

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***Appendix 1: Research Questionnaire (English)***

**Part One: Background Information about You**

The following part of the questionnaire is designed to obtain general information. Please respond by ticking (√) in appropriate box.

| Demographics characteristics | |
|---|---|
| Q1 | Are you? □ Male □ Female |
| Q2 | What is your age?<br>☐ 18-25 years<br>☐ 26-45 years<br>☐ 46-59 years<br>☐ Above 60 years |
| Q3 | What is the highest level of education qualification that you have?<br>☐ No educational qualification<br>□ Secondary School<br>□ High Diploma<br>□ Undergraduate<br>□ Post Graduate |
| Q4 | From where do you usually use internet<br>☐ From home<br>☐ From work<br>☐ From internet café<br>☐ I have no access to internet at all<br>☐ Other (please specify) .....<br>Is it reliable and secure?<br>☐ Yes<br>☐ No |
| Q5 | Which bank/s do you use for majority of your Internet banking services?<br>☐. . . . . |

**Q6.** How long have you been using the Internet banking?

| Don't Use | Under 1 Year | 1-2 Years | 2-5 Years | Over 5 Years |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

**Part Two:** The following questions all relate to your perceptions about acceptance and trust of using internet banking. The questions will only require you to indicate your view by using scale below.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | These questions should be answered from your perceptions of your experiences with banking technology or your perceptions of what internet banking could be like if it were available at your bank.<br>Please note that Internet Banking is about conducting banking services on the Internet | | | | | | |
| Strongly disagree **1** | Disagree **2** | Neutral **3** | Agree **4** | Strongly agree **5** | | | |
| No | Item | | | | | | |
| **Q7** | **How much do you agree or disagree with each of the following statements regarding the usefulness of internet banking?** | | | | | | |
| | Internet banking allows me to accomplish banking transactions more quickly. | 1 | 2 | 3 | 4 | 5 | |
| | Internet banking enables me to manage my financial resources more efficiently. | 1 | 2 | 3 | 4 | 5 | |
| | Internet banking allows me to improve performance of utilising banking services. | 1 | 2 | 3 | 4 | 5 | |
| | Overall, using internet banking fits well with my lifestyle. | 1 | 2 | 3 | 4 | 5 | |
| **Q8** | **How much do you agree or disagree with each of the following statements regarding the ease of use of internet banking?** | | | | | | |
| | Using the internet banking makes it easier for me to implement my transactions. | 1 | 2 | 3 | 4 | 5 | |
| | Internet banking is a convenient method to manage my financial resources | 1 | 2 | 3 | 4 | 5 | |
| | I would have no difficulty learning how to perform the transactions available on my internet banking website. | 1 | 2 | 3 | 4 | 5 | |
| | Internet banking does not require a lot of mental effort. | 1 | 2 | 3 | 4 | 5 | |
| **Q9** | **How much do you agree or disagree with each of the following statements regarding the quality of internet connection?** | | | | | | |
| | My access to the Internet is easy. | 1 | 2 | 3 | 4 | 5 | |
| | The Internet allows to handle my online financial transactions accurately | 1 | 2 | 3 | 4 | 5 | |
| | Using the Internet for handling online financial transactions is efficient. | 1 | 2 | 3 | 4 | 5 | |
| | The Internet allows clients to access the bank's website seven days and 24 hours. | 1 | 2 | 3 | 4 | 5 | |
| **Q10** | **How much do you agree or disagree with each of the following statements regarding with awareness of internet banking services and its benefits?** | | | | | | |
| | The promotional offers that I receive through internet banking transactions are attractive to me. | 1 | 2 | 3 | 4 | 5 | |
| | I receive enough information about internet banking services and products. | 1 | 2 | 3 | 4 | 5 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | I receive enough information about the benefits of internet banking. | 1 | 2 | 3 | 4 | 5 |
| | I receive enough information of using internet banking. | 1 | 2 | 3 | 4 | 5 |
| | I never received information about internet banking from the bank. | 1 | 2 | 3 | 4 | 5 |
| **Q11** | **Do you agree or disagree with each of the following statements about trust of internet banking** | | | | | |
| | Internet banking is trustworthy. | 1 | 2 | 3 | 4 | 5 |
| | I trust in the ability of internet banking to protect my privacy. | 1 | 2 | 3 | 4 | 5 |
| | I am confident of using internet banking even if there is no one around to show me how to use it. | 1 | 2 | 3 | 4 | 5 |
| | I trust my bank as reliable service provider. | 1 | 2 | 3 | 4 | 5 |
| **Q12** | **Security**<br>**How much do you agree or disagree with the following statements?** | | | | | |
| | I am confident that internet banking in Libya is secure. | 1 | 2 | 3 | 4 | 5 |
| | My bank provides 24-hour secure access to internet banking. | 1 | 2 | 3 | 4 | 5 |
| | Information concerning my internet banking transactions cannot be accessed by others. | 1 | 2 | 3 | 4 | 5 |
| | Matters of security have no impact on using internet banking. | 1 | 2 | 3 | 4 | 5 |
| **Q13** | **Attitude Towards Use**<br>**How much do you agree or disagree with the following statements?** | | | | | |
| | Internet banking usage is a positive experience for me. | 1 | 2 | 3 | 4 | 5 |
| | I intend to use internet banking regularly to perform my banking transactions. | 1 | 2 | 3 | 4 | 5 |
| | I intend to increase my use of internet banking transactions in future. | 1 | 2 | 3 | 4 | 5 |

**FURTHER COMMENT**

If you have any further comments about aspects of the Libyan banking systems adoption and use of internet banking technology and the acceptance and trust of its clients regarding this change, please write them below.

……
……
……
……

Your contribution to this research is greatly