People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

University Centre of Maghnia

Institute of economics commerce and management sciences

A Dissertation Presented as a part of the requirements for the award of the Degree of Doctor of economics Sciences

Option: Economics and Enterprise Management

The impact of individual IT culture on e-banking adoption by banks' customers: The Algerian's experience

Submitted By

Latreche Hela

Supervisor

Dr. Bellahcene Mohammed

The members of the discussion committee

Pr. Chibi Abderrahim	Professor	University Centre of Maghnia	President
Dr Bellahcene Mohammed	Lecturer	University Centre of Maghnia	Supervisor
Pr.Benmessaoud Nassreddine	Professor	University of Belhadj Bouchaib Ain Temouchent	Examiner
Dr. Boudjenane Toufik	Lecturer	University Centre of Maghnia	Examiner
Dr. Lachachi Abdelhak	Lecturer	University Of Abou Bekr Belkaid Tlemcen	Examiner

2022/2023

Dedication

**I would like to dedicate this thesis to my parents,
my husband, and my dear daughter**

Acknowledgement

First and foremost, I would like to thank Allah the Almighty for His blessing given to me during my study and in completing this thesis.

I would like to express my gratitude and sincere thanks to my supervisors, Dr. Bellahcene Mohammed and Pr. Vincent Dutot for their help, support, guidance and patience throughout this academic journey. Without their guidance and advice, I would have never been able to accomplish the work of this thesis.

My gratitude is for all those who helped in collecting data and all of those who participated in this study.

Finally, I would like to thank the members of the discussion committee for accepting the discussion of this work, in order to enrich it and reveal its shortcomings.

.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE
Introduction

1. Introduction

The rapid advancement in information technology (IT) and the use of innovative technologies have introduced new ways of delivering banking services and products to customers. These services are based heavily on technology and the internet for the receipting, processing, and disseminating of information to all users and banking consumers. E-banking refers to products and services offered by banks through various electronic channels to enable clients to carry out banking and financial transactions via their cards, computers, or mobiles (Daniel, 1999).

E-banking offers various benefits for both banks and customers. On the one hand, for banks, e-banking reduces operational costs by decreasing material facilities (Chau & Lai, 2003), staffing means required and waiting times in branches; moreover, e-banking systems contribute to satisfying customers' expectations, attracting new potential customers, and consequently reaching higher levels of productivity and profitability (Abubakar, 2014; Chaimaa et al., 2021; Poon, 2007; Salimon et al., 2017 Takieddine and Sun, 2015). On the other hand, for customers, e-banking enables them to access account information and perform banking transactions electronically anytime and anywhere. In addition, the use of e-banking allows for saving time since the customer does not have to be physically present at the bank local (Chaimaa et al., 2021). Thus, it allows them to keep track of their account transactions and balance at all times and reduces the geographical constraints and costs of financial transactions (Roy et al. 2017). Furthermore, e-banking facilitates the e-commerce and e-government activities of customers (Garín-Muñoz et al., 2017).

Despite its potential benefits, e-banking is still a major challenge (Aboobucker and Bao, 2018; Samar and Mazuri, 2019) since customers are unwilling to adopt these services (Martins et al., 2014; Rahi et al, 2019; Arif et al., 2020). It is observed that potential users either do not adopt internet banking or do not use it continually after adoption. Therefore, banks and financial institutions are keen to understand to what extent customers are adopting or using e-banking services. Previous researchers (Courtier and Gilpatric, 1999; Brown et al., 2004) recommended that banks survey customers' requirements to understand factors that can affect their intention to adopt or use e-banking. However, due to the limited number of studies that have been conducted to understand users' adoption or usage intention, the availability of information in this context is limited for many countries, including Algeria.

In Algeria, and even with the massive projects initiated to implement e-banking systems, currency in circulation continues to increase, and most commercial bank consumers continue to conduct banking transactions using traditional channels. Thus, it seems important to understand the essential factors influencing consumers' adoption of e-banking services provided by Algerian commercial banks.

Using the dominant theories of innovation adoption, such as the technology acceptance model (TAM) (Davis et al., 1989) or the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003), a large number of studies have investigated the e-banking adoption process. Their results point out several factors causing the low rate of e-banking adoption, such as perceived ease of use and perceived usefulness (Lee, 2009; Yiu et al., 2007; Roy et al., 2017), facilitating conditions (Alalwan et al., 2017; Rahi et al., 2019), social influence (Rahi et al., 2019; Sharma et al., 2020), or national culture (Mortimer et al., 2015; Takieddine and Sun, 2015; Yuen et al., 2010; Zhang et al., 2018).

Among these variables, the current study sheds light on culture. Indeed, even if culture plays an important role in information technology use (Ashraf et al, 2014), only a few studies have investigated its direct or moderating effects on e-banking adoption constructs (Khan, 2021, Yuen et al., 2010), and most of them have focused on the Hofstede dimensions of national culture. Until now, no study has investigated the effect of individual information technology culture (IITC) on customers' adoption of e-banking systems. Nevertheless, the IT culture perspective may help us to understand individuals' social practices when they interact with technological innovations such as e-banking services. Indeed, the individual's IT-related values, assumptions needs, and motivations can influence his/her behavior in the face of new IT (House et al., 2004) more than those related to the organization or its different subgroups (Leidner and Kayworth, 2006; Walsh et al., 2010). Thus, by understanding a consumer's IT needs and motivations, the IT culture concept can help us explain the complexities of consumers' actions and behaviors toward e-banking systems, which are vital to understanding how these artifacts can be managed. This limitation supposes that if governments and banks want to promote the acceptance and use of e-banking services by customers in Algeria, more research is needed on the impact of IITC on e-banking adoption. From this perspective, this study seeks to identify the impact of IITC on e-banking adoption by Algerian bank customers based on the TAM

(Davis et al, 1989), the UTAUT (Venkatesh et al., 2003), and the spinning top model (Walsh, 2009).

On the other hand, the IT culture concept has been utilized to understand the various cultural patterns associated with IT usage at the individual level (Lynn Kaarst-Brown and Robey, 1999; Leidner and Kayworth, 2006). Walsh (2014) argues that the IT culture concept can explain how and why individuals with similar IT-related values (needs and motivations) form a specific IT culture archetype. IT cultural archetypes are manifestations of individuals who express different IT-related needs and motivations to use IT. Hence, their perceptions and use of new IT, such as e-banking, will be different for each IT culture archetype (Gallivan and Srite, 2005; Leidner and Kayworth, 2006; Walsh et al. 2010). Walsh et al. (2010) found that IT culture archetypes with high levels of IT needs and motivation are more likely to have a proactive and supporting influence on new IT use (Walsh et al. 2010). IT cultural archetypes with lower IT needs and motivation are less likely to have a proactive and supporting influence on new IT use. Therefore, this study also seeks to identify the IT culture archetypes of Algerian bank customers and to identify the relationship between each IT culture archetype and the perceived ease of use and perceived usefulness of e-banking.

For the purposes of this thesis, the following research question was addressed:

What is the impact of individual IT culture on e-banking adoption by Algerian bank customers?

This research question consisted of four sub questions.

What are the factors influencing the adoption of e-banking by Algerian bank customers?

What is the impact of individual IT culture on perceived ease of use and perceived usefulness?

What are the IT cultural archetypal patterns among Algerian bank customers?

What is the impact of IT cultural archetypes on perceived ease of use and perceived usefulness of e-banking?

1. Research objectives

The research aim is to enhance knowledge and understanding in the area of technology acceptance while proposing a theoretical integration of the UTAUT with the TAM and the spinning top model. Specifically, the main objectives of the research are as follows:

1. Investigate the impact of individual IT culture on e-banking adoption by Algerian bank customers.

2. Identify IT cultural archetypal patterns among customers of banks in Algeria.

3. Investigate the impact of IT cultural archetypes on perceived ease of use and perceived usefulness of e-banking.

2. Significance of the research

This study has several theoretical contributions. First, the study enriches the contextual implications of the TAM, UTAUT, and the spinning top model used in Algeria as a case of developing countries and proposes a new model to test and validate users' IITC as an antecedent of adoption. Second, this research contributes to the literature on technology adoption and acceptance, which many researchers have strongly recommended be expanded to new contexts (e-banking), new user groups (young consumers), and new cultures (Algeria). Third, this is the first study to empirically examine the influences of the TAM and UTAUT constructs together with individual IT culture on the adoption or use of e-banking services in Algeria. Indeed, the role of individual IT culture has still not been fully addressed in the relevant studies on e-banking. Finally, this thesis contributes to the IS literature by providing insights into whether the same IT culture archetypes can be identified in settings (e-banking adoption by Algerian bank customers) that are different from those that have already been investigated. Existing research investigating cultural archetypes through individuals' needs and motivation to use IT has mostly employed student samples in educational settings (Walsh and Gettler-Summa, 2010; Walsh et al. 2010). As a result, this study contributes to a more thorough knowledge of how the context of a study may impact the identification of IT culture archetypes by altering the focus from an educational to a banking setting. Moreover, this study has portrayed the relevance of

IT culture as a useful concept to explain how IT culture archetypes might influence individuals' perceived usefulness and perceived ease of use.

3. Research Structure

This thesis is organized into five chapters. The first chapter has been reported above and has given an introduction to the study.

Chapter two is divided into three main sections. Section one covers the technology acceptance theories widely used in studies of e-banking adoption. Section two focuses on defining and conceptualizing the concept of culture, culture in the information systems literature, and individual information technology culture. Section three provides an overview of the individual information technology culture studies.

Chapter three consists of two major sections. The first section discusses the evolution of e-banking, the definition and types of e-banking, and the reality of e-banking in Algeria. The second section reviews the previous studies on e-banking adoption and classifies them by the journals and conferences, year of publication, countries, electronic banking types, research design, data collection method, data analysis method, and framework theory.

Chapter four is composed of four principal sections. Section one discusses the conceptual framework. Section two provides details on the methodology of the research and sample characteristics. Section three presents the data analysis and findings of the research. It begins with the assessment and testing of the proposed research model using partial least squares structural equation modeling. In addition, it finished with a discussion of the results. Section four presents the IT culture archetypes. It begins with cluster analysis and identifies the IT culture archetypes present in the dataset. Then, it presents the development of the hypotheses and tests them through multiple regression analysis with dummy variables. The results obtained are then discussed to conclude the section.

Chapter five is devoted to the conclusions derived, in addition to reporting research contributions, implications and limitations.

CHAPTER TWO: Thechnology Acceptance and IITC; Theoretical foundations and Previous studies

CHAPTER TWO: Technology Acceptance and IITC; Theoretical foundations and Previous studies

1. Introduction

Information technology acceptance studies are permanently growing, and new technologies are constantly evolving. The advancement of new technologies provides an opportunity for enterprises to keep customers and offer them new services and products (Rahi et al., 2018). In this context, the banking sector uses technology not only for internal operations but also to provide appropriate services to customers. Despite the prospective benefits that e-banking offers to consumers, the adoption of e-banking has been limited and, in many cases, fallen short of expectations (lee, 2009). Hence, there is still a large group of customers who refuse to adopt e-banking services due to several factors indicated by many studies, such as perceived ease of use, perceived usefulness, facilitating conditions, social influence**,** or national culture (Yiu et al., 2007; Mortimer et al., 2015; Takieddine and Sun, 2015; Roy et al., 2017; Alalwan et al., 2017; Zhang et al., 2018; Rahi et al., 2019; Sharma et al., 2020).

More recently, some researchers (Walsh et al., 2010; Walsh, 2010, 2020) suggest including the individual IT culture in information systems adoption models and indicate that individual IT culture could be an antecedent to perceived ease of use and perceived usefulness. Similarly, Von Stetten et al. (2011) showed that an individual who is already completely familiar with information technology will perceive an information system to be useful and easy to use as well. Therefore, this research investigates the impact of individual IT culture on e-banking adoption by Algerian bank customers.

In this aim, the present chapter discusses the different concepts of this study in a stepwise approach. First, we discuss the technology acceptance theories and models widely used in studies of e-banking adoption. Second, we define and conceptualize the concepts of culture, culture in the information systems literature, information technology culture, and individual information technology culture. Third and finally, we present previous studies on individual IT culture.

2. Technology Acceptance Theories

This section identifies the basic theories previously utilized to study consumer behavior toward new technology. These theories included the theory of reasoned action, theory of planned behavior, diffusion of innovation theory, decomposed theory

of planned behavior, technology acceptance model, and the unified theory of acceptance and use of technology.

2-1- Theory of Reasoned Action

The theory of reasoned action (TRA) is an established theory of behavior that was introduced in 1975 by Fishbein & Ajzen. The TRA identifies the relationships between beliefs, attitudes, and behaviors (Moore and Benbasat, 1996). The theory began with the proposition that a person's overt behavior is determined by their intention to perform that behavior (Fishbein and Ajzen, 1975); thus, the performance of a specified behavior is essentially determined by the strength of an individual's intention to perform that behavior, where the intention is defined as the subjective likelihood that the individual will perform the behavior in question (Fishbein, 2008).

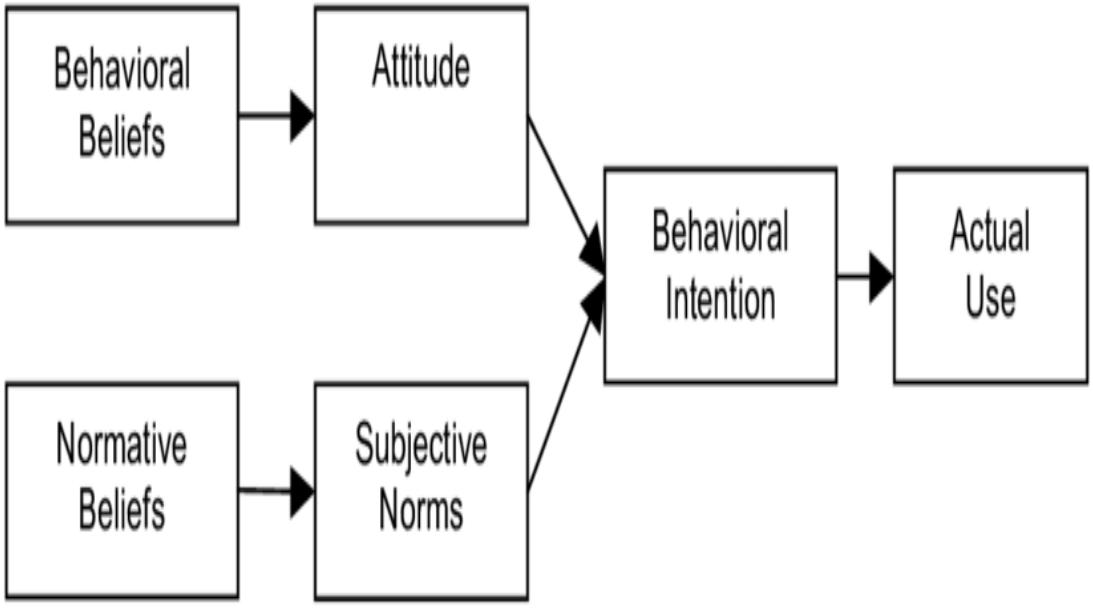
The TRA (Figure 1) defines behavioral intention as a function of two determinants: an individual's subjective norm and an individual's attitude toward behavior (Yousafzai et al., 2010; Marakarkandy et al., 2017). Attitude refers to the sum of beliefs concerning behavior in question when favorably or unfavorably assessing that behavior (Fishbein and Ajzen, 1975). Subjective norms mean the influence of important people in an individual's social environment on his behavior (Mwiya et al., 2017).

The theory also identifies the determinants of attitudes and subjective norms. According to Fishbein and Ajzen (1975), attitudes are a function of behavioral beliefs and their evaluative aspects. Similarly, subjective norms are a function of normative beliefs and motivations to comply. Behavioral Beliefs refer to one's subjective probability that performing a particular behavior will result in consequences. The evaluation term is defined as the implicit evaluative response to the consequence (Fishbein and Ajzen 1975). Normative beliefs are defined as the perceived expectations of particular referent individuals or groups and their motivation to comply with these expectations (Davis et al., 1989).

TRA has been successfully used to predict behavior and intention in a variety of topic areas. Simultaneously, a number of studies have been conducted to better understand its limitations, test hypotheses, and analyze extensions and refinements. These studies found that TRA has significant predictive potential across a wide range

of areas. However, it has some limitations, as researchers have found conflicting results in regard to the effects of subjective standards on behavioral intention. For instance, Davis et al. (1989) found no significant effect of subjective norms on behavioral intention. To overcome the limitation of the TRA, Ajzen (1991) developed the Theory of Planned Behavior (TPB).

Figure 1 Theory of reasoned action (Fishbein & Ajzen, 1975)



2-2- The Theory of Planned Behavior (TPB)

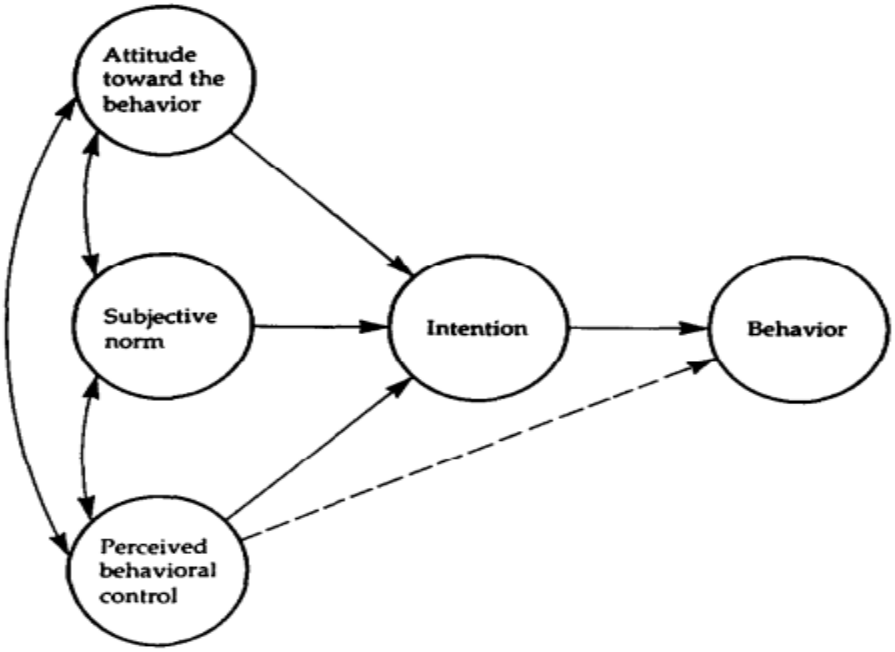
The theory of planned behavior (TPB) (Ajzen, 1991) is a general social psychological model used to examine and predict behavior in situations where one might lack control over his or her behavior (Al-Debei, 2013). As in the TRA, a major factor in the TPB is one's intention to perform a target behavior (Crespo and Del Bosque, 2008). Behavioral intention is a function of three factors: subjective norms, attitude toward the behavior, and perceived behavioral control (see Figure 2) (Asadi & Saedi, 2016; Taherdoost, 2018). Therefore, the TPB is an extension of the TRA by including a new determinant of behavioral intention, perceived behavioral control.

Perceived behavioral control evaluates the degree to which persons perceive that they have control over enacting the behavior in question. Therefore, an individual who does think himself capable of particular behavior will show correspondingly a

behavioral intention to exhibit this behavior (Aboelmaged, 2010; Herrero and Del Bosque, 2008).

The major difference between the TRA and TPB is that the TPB includes an external variable, perceived behavioral control, which influences actual behavior both directly and indirectly through intention. According to several researchers, the TPB has a higher predictive power of behavior than the TRA (Cheung et al., 1999).

Figure 2: Theory of Planned Behavior (Ajzen, 1991)



2-3- Diffusion of innovation theory

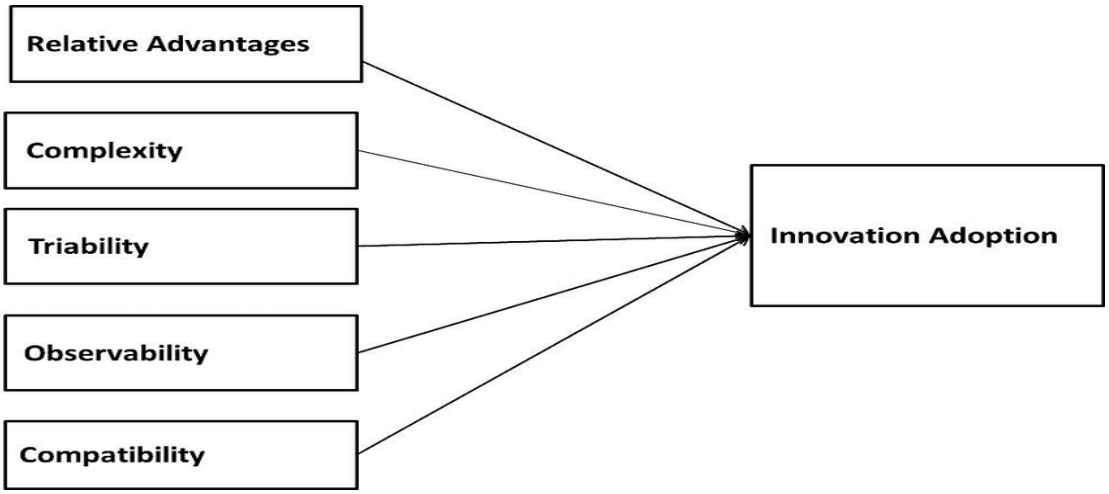
Innovation means a new concept, information technology or system presented to the targeted public for adoption. In 1983, Rogers developed a diffusion of innovation theory **(**DOI) to explain how new ideas and technology take place in social systems and spread through cultures (Al-Jabri and Sohail, 2012). According to DOI theory, persons gather and synthesize information about an innovation and systemize this information to form their perceptions about innovation. Based on these perceptions, an individual can decide to accept or reject an innovation (Moore & Benbasat, 1991).

Rogers (1983) identified five attributes of an innovation that are principal factors that influence adoption behavior (Figure 3). These attributes are relative advantage, complexity, compatibility, trialability, and observability (Liu & Li 2010; Papies & Clement 2008). Relative advantage is defined as the degree to which an

innovation is perceived to be better and provides more benefits than its predecessor (More & Benbasat 1991). Complexity refers to the extent to which an innovation is hard to understand and use (Cheung et al. 2000). Compatibility is the degree to which an innovation is consistent with the existing values. Triability is defined as the degree to which an innovation can be experimented with before acceptance, and observability is the degree to which the result of innovation is visible (Pease & Rowe, 2004).

The diffusion of the innovation model contributed to understanding the individual adoption processes and influenced other adoption models in information technology acceptance (Rogers, 1995). However, the five attributes in DOI theory Rogers (1983) are only related to the characteristics of the innovation itself.

Figure 3: Innovation Diffusion Theory (Rogers, 1983)

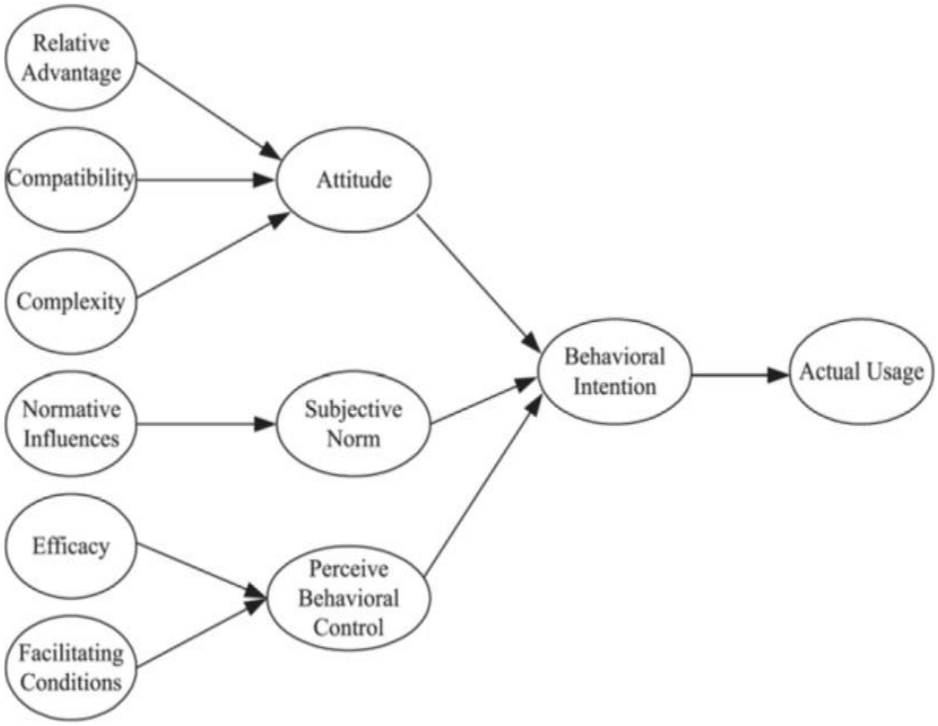


2-4- Decomposed Theory of Planned Behavior

Based on DOI theory and TPB, Taylor and Todd (1995) proposed the decomposed theory of planned behavior (DTPB). Figure 4 depicts the diagram of Taylor and Todd's DTPB. According to this model, there are three main factors influencing behavioral intention to adopt innovation. They are attitude, subjective norms, and perceived behavioral control (PBC) (Shih and Fang, 2004).

Taylor and Todd (1995) took Rogers's (1983) perspective and decomposed attitude into three multidimensional beliefs: relative advantage, complexity, and compatibility. They also took Ajzen's perspective of PBC and decomposed PBC into two control beliefs related to perceived self-efficacy and facilitating conditions (Taylor and Todd, 1995). Last, subjective norms consist of normative beliefs.

Figure 4: The decomposed theory of planned behavior (Taylor and Todd, 1995)



2-5- The Technology Acceptance Model

The technology acceptance model (TAM) was originally developed by Davis (1986) to predict the determinants of computer acceptance. The fundamental purpose of the TAM is to trace the influence of external factors on internal attitudes and intentions (Chauhan, 2015; Priya et al., 2018). In an attempt to achieve this goal, TAM was formulated by identifying a small number of key variables suggested by previous research on the acceptance of technology and using TRA as a theoretical foundation for modeling the theoretical relationships among these variables (Davis et al., 1989; Prasanna and Huggins, 2016)

According to the TAM, information technology adoption depends on perceived ease of use and perceived usefulness (Mwiya et al., 2017; Alalwan et al., 2016; Mansour et al., 2016). Perceived ease of use refers to the degree to which an individual thinks that using new technology will be free of effort, and perceived usefulness is the degree to which an individual expects that using new technology will increase his or her job performance (Venkatesh and Bala, 2008).

Similar to the TRA, the TAM proposes that computer usage is determined by behavioral intention but differs in that behavioral intention is a function of attitude toward using the system and perceived usefulness (see figure 5) (Davis et al., 1989).

The TAM was most widely used in information systems research, and it was the first technology acceptance model to accumulate large empirical support (Lai & Li, 2005; Lin, 2013; Prasanna & Huggins, 2016; Roy et al., 2017). Furthermore, researchers in information systems adoption viewed TAM as a powerful model and tried to provide bank leaders and e-banking service providers with strategies to improve their e-banking platforms and advantages to raising the rate of customers' adoption (Aboobucker & Bao, 2018; Alalwan et al., 2016; Marakarkandy et al., 2017).

Nevertheless, the TAM framework omits many crucial theoretical constructs, such as demographic or external variables, and it does not reflect the variety of user constraints (Olushola & Abiola, 2017; Venkatesh & Davis, 2000). In previous studies on the adoption of e-banking, researchers mention various limitations of the TAM model to predict customer acceptance and use of e-banking services and contained other external variables to support the model (George, 2018; Novita, 2017; Shaikh & Karjaluoto, 2015; Yaseen & El Qirem, 2018). The factors most repeatedly investigated included hedonic motivation, perceived risk, and trust (Roy et al., 2017; Alalwan et al, 2018; Mengistie and Worku, 2020).

To address the limitations of TAM, Venkatesh and Davis (2000) suggest an extension of TAM—TAM2 (figure 6). The TAM2 model did not include attitude toward using and added identifying new determinants of perceived usefulness, that is, subjective norm, image, job relevance, output quality, and result demonstrability. (Riskinanto et al., 2017). Beyond its contributions, TAM2 only examines the fundamentals of perceived usefulness and ignores the perceived ease of use construct. Therefore, Venkatesh and Bala (2008) developed TAM3 (figure 7) to explain perceived ease of use in addition to the perceived usefulness determinants, as per TAM2. The additional variables to the TAM3 include general beliefs about technologies such as computer self-efficacy, perception of external control, computer anxiety, perceived enjoyment, and objective usability (Lindsay et al., 2011).

Figure 5: The Technology Acceptance Model (Davis et al., 1989)

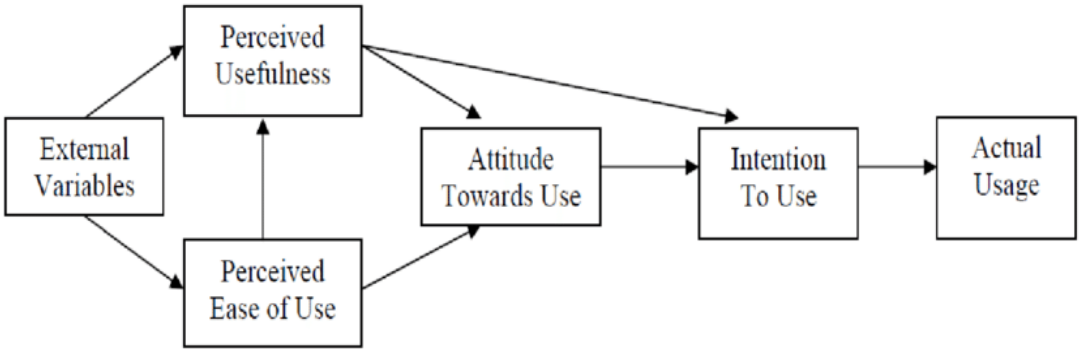


Figure 6 Technology Acceptance Model 2 (Venkatesh and Davis, 2000)

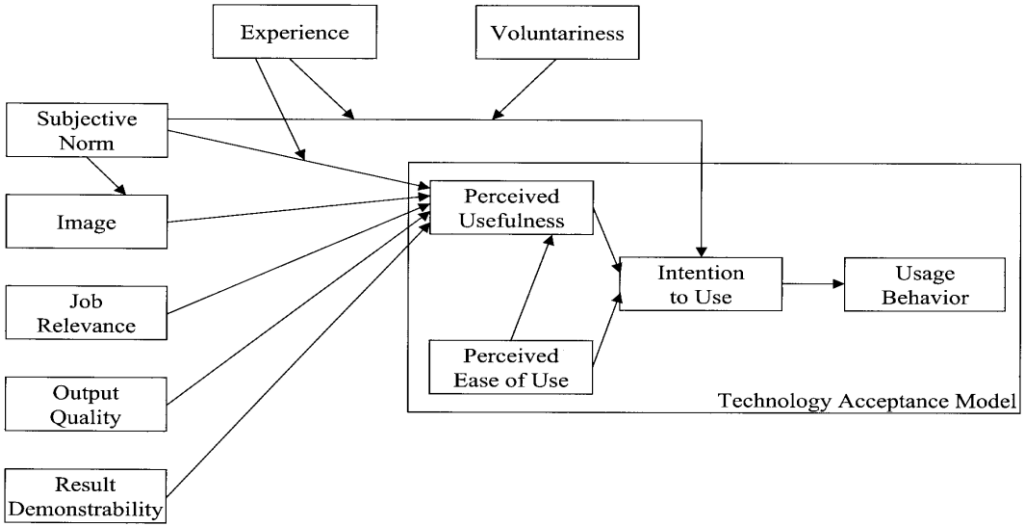
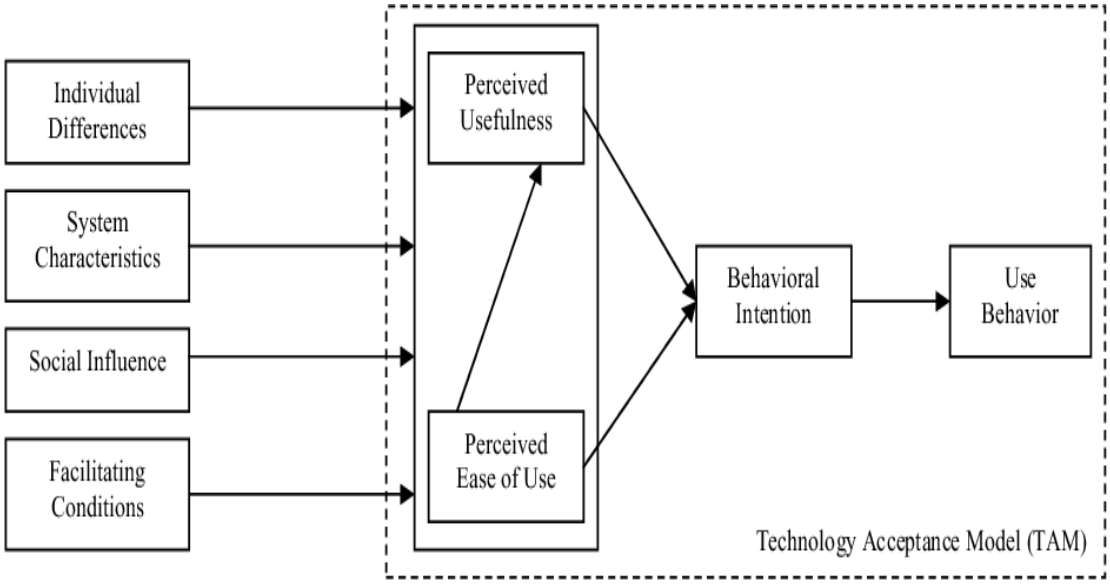


Figure 7: Technology Acceptance Model 3 (Venkatesh and Bala, 2008)



2-6- The unified theory of acceptance and use of technology

The unified theory of acceptance and use of technology (UTAUT) was developed by Venkatesh et al. (2003) by integrating eight different models that explain the factors that impact information technology adoption. These eight theories include TRA, TPB, TAM, the motivational model, combining a model of the TAM and TPB, the model of personal computer utilization, diffusion of innovation theory, and social cognitive theory (Raza et al., 2019; Park et al., 2011; Rahi et al, 2019). The UTAUT (Figure 8) incorporates four core determinants of information systems adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions (Merhi et al., 2019; Taherdoost, 2018). Furthermore, the key relationships in the theory are moderated by gender, age, experience, and voluntariness of use (Olushola & Abiola, 2017).

According to Venkatesh et al. (2003), performance expectancy is the degree to which one believes that using technology will improve their performance. Effort expectancy is the degree of ease related to the use of the technology (Raza et al., 2019; Rahi et al, 2019). Similarly, social influence is defined as how strongly a person perceives that others believe that he or she should use the new technology (Venkatesh et al., 2003; Rahi et al., 2019). Facilitating conditions are defined as the degree to which a person thinks that a technical and organizational infrastructure exists to support the use of the technology (Venkatesh et al., 2003; Alalwan et al., 2017; Baabdullah et al., 2019).

UTAUT is a widely used model for addressing consumer adoption of e-banking systems (Sharma et al., 2020; Rahi et al., 2019, Yaseen and El Qirem, 2018; Martins et al, 2014). In this context, researchers indicate various limitations of the UTAUT model and contain other external variables to support the model of their studies. The factors most frequently investigated included trust, national culture, perceived risk, perceived security, and availability of the internet (Chaouali et al., 2016; Sharma et al., 2020; Merhi et al., 2019; Anouze and Alamro, 2020)

Venkatesh et al. (2012) extended the UTAUT model to UTAUT2 (Figure 9) by including three other variables, hedonic motivation, price value, and habit (Yaseen &

Al Qirem, 2018). Hedonic motivation is defined as the enjoyment or pleasure derived from using new technology. Habit refers to the extent to which individuals tend to implement behaviors automatically because of learning, and price value means the consumers' cognitive trade-off between the perceived benefits of the applications and the monetary cost of using them (Venkatesh et al., 2012)

Figure 8: Unified theory of acceptance and use of technology (Venkatesh et al., 2003)

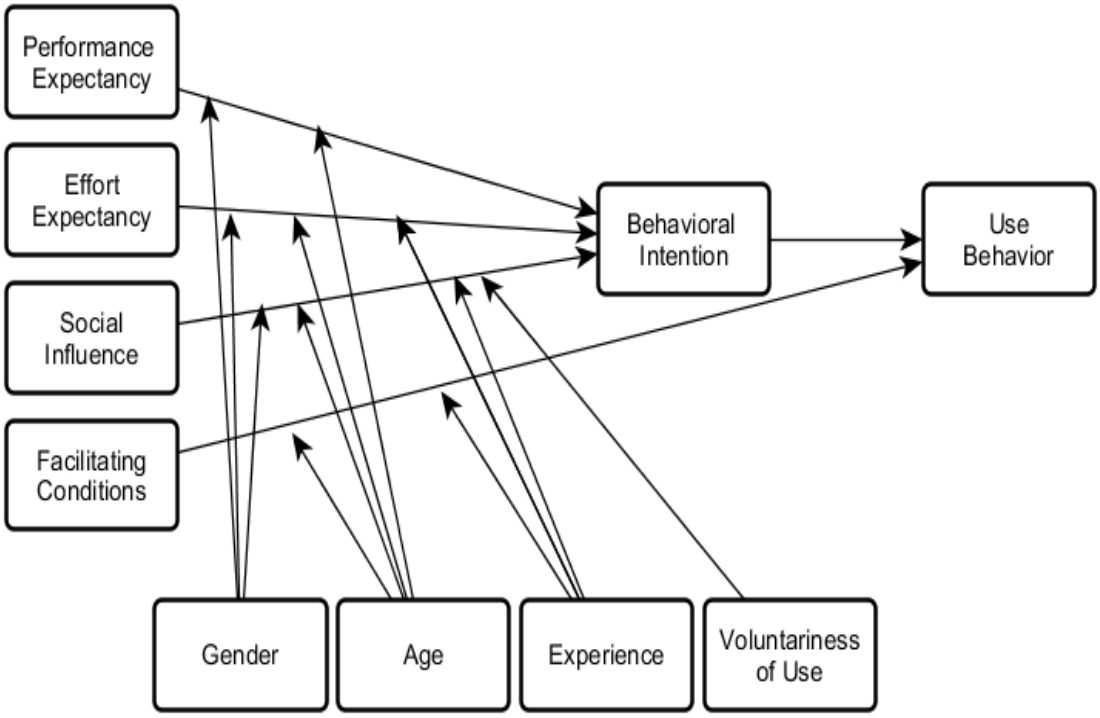
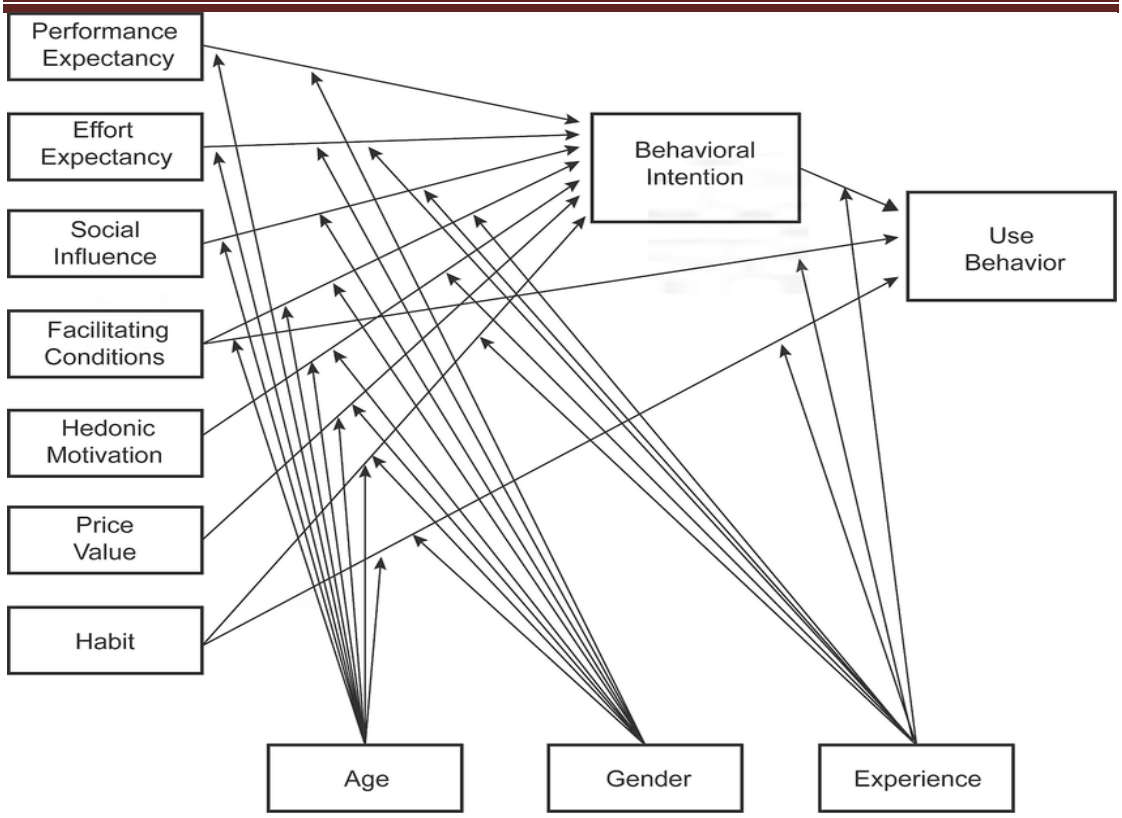


Figure 9 The unified theory of acceptance and use of technology 2 (Venkatesh et al., 2012)



Overall, this section has presented the models widely used in predicting behavior toward new technology adoption. Although the TRA and TPB are among the most commonly used models for explaining technology acceptance, these models are criticized for their relatively low explanatory power in terms of behavioral intentions (Al-Qeisi, 2009). Therefore, this research utilizes the TAM since, among the information systems adoption models reported in the literature, the TAM is the most applied model in this context (Chandio et al., 2017; Santouridis and Kyritsi, 2014) and is the most powerful model for explaining user acceptance (Venkatesh and Davis, 2000; Yousafzai et al., 2010). Nevertheless, the TAM omits many crucial theoretical constructs, and it does not reflect the variety of user constraints (Olushola & Abiola, 2017). To address these limitations, Venkatesh & Davis (2000) extended the TAM model to the TAM2 model. Even though TAM2 has been widely used in information system acceptance and adoption studies, there has been considerable criticism of the heuristic value of TAM2 and its limited explanatory power (Cheung and Vogel, 2013). To address these concerns, Venkatesh and Bala (2008) developed the third version of the model (TAM3). Although TAM3 is an improved version of prior models, it is not considered in this study since, according to the research results of Jen

et al. (2009), complex models do not necessarily have better explanation ability. As a result, because TAM3 is a very long and complex model, it represents a limitation that could hinder its use. Furthermore, TAM3 is a new theory, and not enough research has been published to validate it (Khan, 2017). Therefore, and in addition to the TAM, this research utilizes the UTAUT model. The UTAUT provides a very good and detailed model for the acceptance and use of technology (Baptista and Oliveira, 2015). Various studies on e-banking adoption have found that UTAUT has excellent explanatory power over other models of technology acceptance (Rahi and Ghani, 2018; Sharma et al., 2020; Tarhini et al., 2016).

3. Individual Information Technology Culture

This section identifies the theoretical background of the individual IT culture. It includes the definition of culture, culture in information systems literature, defining IT culture and individual IT culture.

3-1- Defining Culture

Culture has been viewed in sundry ways. According to Delavallee et al. (2002), more than 160 different definitions of culture can be distinguished in the literature, covering components as diverse as the architectural or artistic heritage of a nation; the set of values and standards common to all members of an organization; the history, symbols, myths, and heroes that characterize the memory of a social group, etc.

Furthermore, Culture is defined as networks of knowledge consisting of feeling, learned routines of thinking, interacting with other people, and a collection of ideas about aspects of the world. From this perspective, culture is shared among a set of interconnected individuals, who are often defined by ethnicity or nationality; it is used to form the common ground for communication among members (Hong, 2009). In addition, Hofstede (1991) defines culture as the collective programming of the mind that identifies the members of one set or category of persons from another.

In this study, we adopt the conception proposed by Schein (1985), who perceives culture as “a pattern of all the shared basic assumptions (values, beliefs, attitudes, practices, behaviors, methods, etc.) Invented, discovered, or developed by a

given group as it learned to cope with its problems of external adaptation and internal integration".

This pattern is made up of three levels: the level of artifacts (audible or visible behaviors), the level of beliefs and values, and the level of basic underlying assumptions (Schein, 1991; 2010).

Artifacts include visible and feelable structures and processes of the group, such as its language, technology and products, style..., and observed behavior. However, espoused beliefs and values consist of ideas, goals, values, aspirations, ideologies, and rationalizations. Finally, basic underlying assumptions contain unconscious, taken-for-granted beliefs and values, perception, thought, and feeling (Schein, 2010).

3-2- Culture in information systems literature

In the information systems literature, most research on cultural issues pinpoints culture at the national or organizational level (Leidner and Kayworth, 2006; Min et al., 2009). However, few studies have examined culture at the individual level (Gallivan and Srite, 2005). In the next section, a brief of culture at the national, organizational, and individual levels is presented.

2-2-1- Culture at the national level

At the national level, culture is a concept that allows for the identification of similarities and differences between the cultures of countries (Agourram and Ingham, 2007). Many scholars have developed national culture models, such as Hofstede's model (1980), Hall and Hall's model (1990), and Schwartz's model (1999). The following sections go over the specifics of each model.

Hofstede's model

However, attempts have been made to conceptualize the most appropriate dimensions for studying national culture. The framework developed by Hofstede (1980) remains the most widely used national cultural structure in psychology, sociology, management, and marketing studies (Mortimer et al., 2015). This model includes four dimensions of national culture: individualism/collectivism, power distance, uncertainty avoidance, and masculinity/femininity (Takieddine and Sun,

2015). Later, while conducting an international study with Chinese employees and managers, a fifth dimension, 'Long-Term versus Short-Term Orientation', was added (Hofstede and Bond 1988). In the 2010s, Hofstede et al. Added the sixth dimension called Indulgence versus Restraint. The definitions of these six dimensions are shown in table 1.

Hofstede's dimensions have generally been used to understand the impact of national culture on information technology user behavior across different country contexts. For instance, prior studies on information systems adoption show that national culture plays an essential role in information systems adoption (Ashraf et al., 2014; Lee et al., 2013, Zhang et al., 2018) and constitutes a significant factor that explains differences in IT growth and level of diffusion (Bagchi et al. 2004; Takieddine and Sun, 2015). In particular, Zhang et al. (2018) found that each of Hofstede's national cultural dimensions has a moderating effect on the e-banking adoption variables (social influence, trust, performance expectancy, effort expectancy, and perceived risk), and Khan et al. (2021) indicate that Hofstede cultural variables moderate the relationship between behavioral intentions and customers' adoption of e-banking in Pakistan and Turkey.

Table 1: Dimensions of national culture (Hofstede, 2011)

Dimensions of national culture	Definitions
Individualism/collectivism	Reflects the degree to which individuals in a culture prefer to act as individuals rather than as members of groups.
Uncertainty avoidance	Measure the degree to which a person in society feels uncomfortable with ambiguity and uncertainty.
Masculinity/femininity	Represents the degree to which values like success, performance, and competition prevail between people of cultures over gentler values like the quality of life, and maintaining warm personal relationships.
Power distance	Refers to the degree to which people in a society accept inequities in power distribution.
Long-Term versus Short-Term Orientation	Means the degree to which a society emphasizes the future rather than the past or present.
Indulgence versus Restraint	Related to the gratification versus control of basic human desires related to enjoying life.

Hall and Hall model

Another theory of culture that has been used in the information systems area was developed by Hall and Hall (1990), who considered culture as a means of distinguishing one community from another through communication. They suppose that the world of communication can be divided into three parts: words, objects, and behavior. Understanding these three aspects of the communication process reveals the underlying principles that form our life. They created other cultural dimensions that contain high vs. Low context communication, monochronic vs. Polychronic time, space, and speed. High vs. Low context communication refers to the method information is transmitted. Communication happens through explicit declarations in text and speech in high-communication context cultures, while other communication indicators, such as body language and silence, are stressed in low-communication context cultures (Afrouzi, 2021). Monochronic vs. Polychronic time orientation refers to how society deals with time. Polychronic time cultures are characterized by a predisposition to engage in multiple activities occurring at the same time and a disregard for schedules, whereas monochronic time cultures are characterized by a preference for completing tasks sequentially and according to schedules. Another dimension is space, which refers to a person's perception of his or her own personal area and territory. Members of a high territorial society will safeguard their ownership, while members of a low territorial society will share their ownership (Hall and Hall, 1990). The final dimension is speed, which is defined as the speed at which communications are transmitted throughout a community, which can be either quick or sluggish. A rapid message can be quickly decoded and acted upon, whereas sluggish communication takes longer. This model may only be appropriate for certain types of IS research that study the communication category (Ali et al., 2009).

Schwartz's model

Another model for studying culture at the national level is the Schwartz Value Survey (1992). Schwartz identifies seven cultural orientations that are then grouped into three bipolar dimensions (embeddedness vs. Autonomy, hierarchy vs. Egalitarianism, and mastery vs. Harmony). The seven cultural value orientations are conservatism, autonomy, intellectual & affective, hierarchy, egalitarianism, mastery,

and harmony (Smith & Schwartz, 1997). These seven cultural value orientations are summarized in table 2.

According to Hanges & Dickson (2004), there are two primary strengths in Schwartz's work. First and foremost, it is theory-driven and based on a thorough comprehension of philosophical, religious, and empirical literature from various civilizations and societies. Second, it thoroughly evaluates and builds on previous works on culture. Schwartz argues that his framework is more comprehensive than that of Hofstede (Schwartz, 2006) because Hofstede's four dimensions are included within his set of value orientations (Schwartz, 1994). On the other hand, Schwartz's model of culture is considered the least used in the information systems area (Ali et al., 2009)

Table 2: Schwartz's seven cultural orientation value types (Smith & Schwartz, 1997).

Value Type	Description
Conservatism	The individual is seen as part of a collective, finding purpose in life primarily through social interactions while also identifying with the group and partaking in its shared way of life. A cultural emphasis on maintaining the status quo, appropriateness, and restraint of behaviors or tendencies that might upset the solidarity group or the conventional order. Such as respect for tradition, family security, and self-discipline.
Autonomy: Intellectual & Affective	The individual is an independent, bounded being who finds meaning in his or her uniqueness and is encouraged to express his or her internal characteristics (preferences, qualities, feelings). According to Schwartz, there are two sorts of autonomy: Intellectual autonomy emphasizes the individual's autonomy in terms of ideas and rights to pursue his or her intellectual paths. Affective Autonomy highlights an individual's ability to pursue effectively rewarding experiences on their own.
Hierarchy	Differential allocation of fixed positions and resources is the appropriate and desired technique to govern interdependencies in high hierarchical societies. People are socialized to follow the norms and their obligations, and if they do not, they are punished. A cultural emphasis on the propriety of unequal power, roles, and resource distribution such as social power, authority, and humility.

Egalitarianism	Individuals are portrayed as moral equals in high-equality societies, who share basic interests and are socialized to transcend selfish goals, interact voluntarily with others, and show care for the welfare of all such as equality, social justice, responsibility, and honesty.
Mastery	People in high mastery cultures actively seek to master and transform the natural and social worlds, exercising control over them and exploiting them for personal or group gain. A focus on active self-assertion as a means of advancing in society, such as ambition, success, and daring.
Harmony	High harmony cultures aim to preserve rather than change or exploit the world as it is. The cultural emphasis blends seamlessly with the surroundings such as protecting the environment, a world of beauty.

2-2-2- Culture at the organizational level

The other cultural lens that has contributed to the understanding of how culture influences information systems and technology management phenomena is organizational culture. Schein (2010, p18) defined organizational culture as "A pattern of shared basic assumptions that the group has learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel concerning those problems". Furthermore, the organizational culture refers to the beliefs, collective values, and basics of organizational members, and it is a collection of shared mental assumptions that pilot action and interpretation in organizations by defining suitable behavior for several situations (Yu and Choi, 2016).

Martin (2002) suggests that organizational culture can be viewed from three perspectives: a fragmentation perspective, an integration perspective, or a differentiation perspective. The fragmentation perspective "moves beyond the clear consistencies of an integrated view and the clear inconsistencies of a differentiation view. Alternatively, fragmentation studies are more likely to view ambiguity as a normal, salient, and inescapable part of organizational functioning in the contemporary world" (Martin, 2002, p. 105). The integration perspective "focuses on those manifestations of a culture that have mutually consistent interpretations" (Martin, 2002, p. 94). In contrast, the differentiation perspective recognizes that

culture is not shared equally; rather, the same technology can be interpreted differently by organizational subgroups (Jackson, 2011).

Institutionally, organizational cultures shape how organizations choose to use technology. Cultural factors such as the organization of work, communication flow, decision-making practices, control, coordination, and the absence of bureaucracy in an organization influence individual decisions to utilize new technologies in the workplace (Melitski et al., 2010). In addition, previous studies on cultural issues in the information systems literature over the last several decades have found that organizational culture is a key factor in the success or failure of information systems adoption (Jackson, 2011; Hoffman and Klepper, 2000).

2-2-3- Culture at the individual level

Researchers have attempted to develop a scale to measure culture at the individual level based on Hofstede's dimensions of culture. However, the current literature on how to evaluate Hofstede's cultural dimensions at the individual level is disorderly because no scale is universally accepted yet (Yoo et al., 2017). On the other hand, in a seminal study at the individual level, Schwartz (1992) discovered a near-universal structure of human values with 10 value types. Subsequently, according to Schwartz (1994), the value frameworks suited for comparing civilizations' cultures differ from those appropriate for comparing individuals. Schwartz derived ten distinct individual motivational types of values, organized along two basic dimensions: conservation vs. Openness to change and self-transcendence vs. Self-enhancement. Relatively few studies have attempted to integrate Schwartz's values with the technology acceptance model (Mehta et al., 2019). More recently, Yoo et al. (2011) developed a cultural value scale (CVSCALE) gathering five dimensions to interpret cultural differences at the individual level. The five dimensions of individual cultural values are power distance, uncertainty avoidance, collectivism, long-term orientation, and masculinity. Despite initially suggested estimation of the individual culture variations in the consumer market, the CVSCALE has also been adapted to various research domains, such as information technology acceptance (Odusanya, 2018). Moreover, Tajfel and Turner (1979) and Straub et al. (2002) successively developed two related models, social identity theory and the virtual onion model, to explain the notion of culture at the individual level. These

models propose that an individual belongs to several subcultures, having an affiliation with various social groups at the religious, national, professional, organizational, and ethnic levels (Abubakre et al., 2017). The concept of culture is also examined at the individual level in the spinning top model (Walsh and Kefi, 2008). This model explains the global culture of an individual as a collection of cylinders embedded in an innate core cylindrical axis. These cylinders relate to the particular cultural layers of the individual: ethnic, organizational, national…and technological. The details of social identity theory, the virtual onion model, and the spinning top model are discussed below.

Social Identity Theory

Social identity theory (SIT) was developed by Tajfel and Turner (1979) as a social psychological theory of intergroup relations and Cooperation and Conflict between Groups (Hogg, 2016) to explain how persons make sense of themselves and others people in the social environment (Korte, 2007). According to SIT, the self-concept consists of a personal identity containing idiosyncratic characteristics (e.g., bodily attributes, abilities, psychological traits, interests) and a social identity encompassing prominent group classifications. As a result, social identity is defined as a feeling of oneness with or belonging to a group of people (Ashforth and Mael, 1989). Therefore, social identity is an output of communicative behaviors, as it is shaped and evolved through social reactions. Through communicating with others, individuals cross their belonging to different groups. Therefore, assessing a person's interaction and relationships with others or their affiliations with social groups contributes to the understanding of individuals' behavioral beliefs and attitudes (Guan and So, 2016).

The major idea of SIT is that a person forms a special personal identity as an individual and evolves a social identity based on the set to which he or she belongs. The SIT recognizes that persons define themselves as members of an ''in the set'' or ''out the set'' concerning different reference points (ethnicity, religion, occupation, nationality, gender, etc.) (Gallivan and Srite, 2005). Much like the layers of an onion, the layers of social identity converge and interact for each person and reflect how some deep or superficial beliefs can shape his perceptions and behaviors.

Straub et al. (2002) proposed that SIT is a theoretical approach to examining culture at an individual and organizational level in information systems research (Hwang, 2005). In this context, researchers leveraged social identity theory to shed light on information technology acceptance (Schwarz and Watson 2005) and the relationship between IT culture and IT usage (Walsh 2014; Walsh et al. 2010).

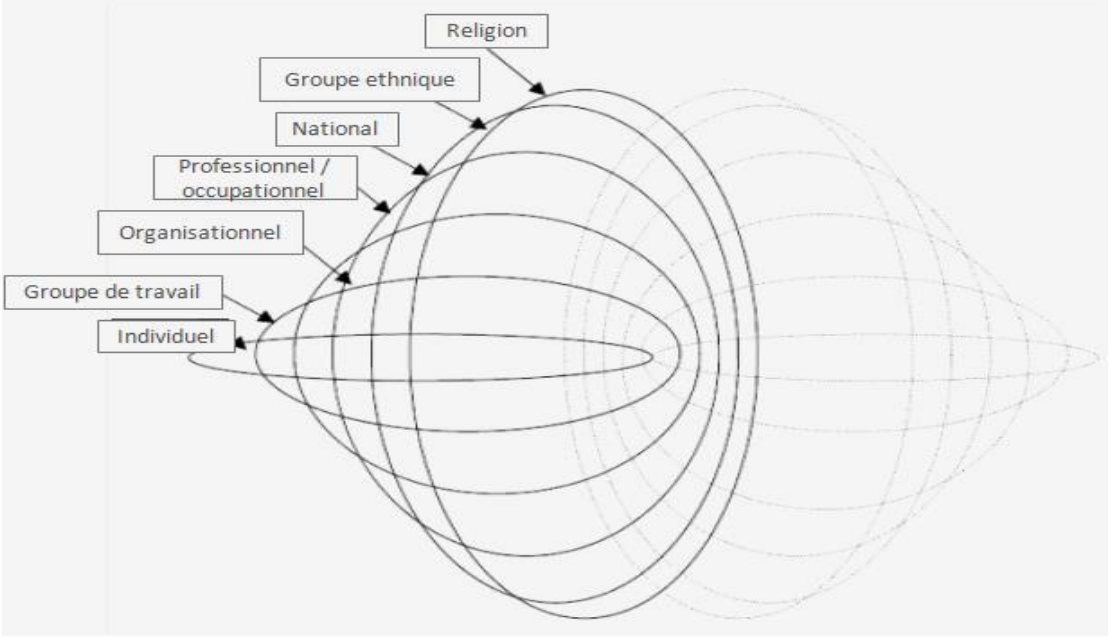
Virtual onion model

Starting from SIT, Straub et al. (2002) introduced the notion of culture as a virtual onion. As shown in Figure 10, the idea of this model is that each person has different "layers" of cultural identity (national, organizational, professional, ethnic, and religious, etc.) Similar to the skin of an onion (Leidner, 2010), the order of which will determine the importance of each layer and its influence on individuals' vision and behavior (Choi et al. 2016).

This approach acknowledges that various layers of culture can react and entwine in sophisticated methods, and such layers may impact personal behaviors differently for individuals or groups with several backgrounds (Straub et al. 2002). In other words, according to external stimuli, these cultural layers turn to reflect and define unique reactions common to a certain in-group and alien to other out-groups (Odusanya et al., 2015).

Various layers may carry more impact on an individual at several points in time or when faced with different circumstantial triggers (Leidner, 2010). Thus, the virtual onion model identifies the order of importance of each cultural level to the person's social identity; the nearer a level is to the individual, the more significant it is to that person, and vice versa. For example, if ethnicity is most significant, then ethnic values are regarded as more important than values of other cultural levels (Choi et al., 2016).

Figure 10: The virtual onion model (Gallivan and Srite, 2005)



Spinning top model

Based on the virtual onion model, Walsh and Kefi (2008) develop the spinning top model to explain the global culture of a person. This model proposes that some facets of an individual's culture are fully stable and represented by the innate core cylindrical axis; however, other facets are more flexible, represented by the outer cylinders (e.g., ethnic group culture, national culture, religious culture, organizational culture, information technology culture...) (Leidner, 2010). These cylinders are dynamic, and their volume as well as their relative positioning with respect to each other and to the central innate core can change. These sylinders will vary depending on the successive socialization processes occurring during the individual's lifetime (Walsh and Kefi, 2008).

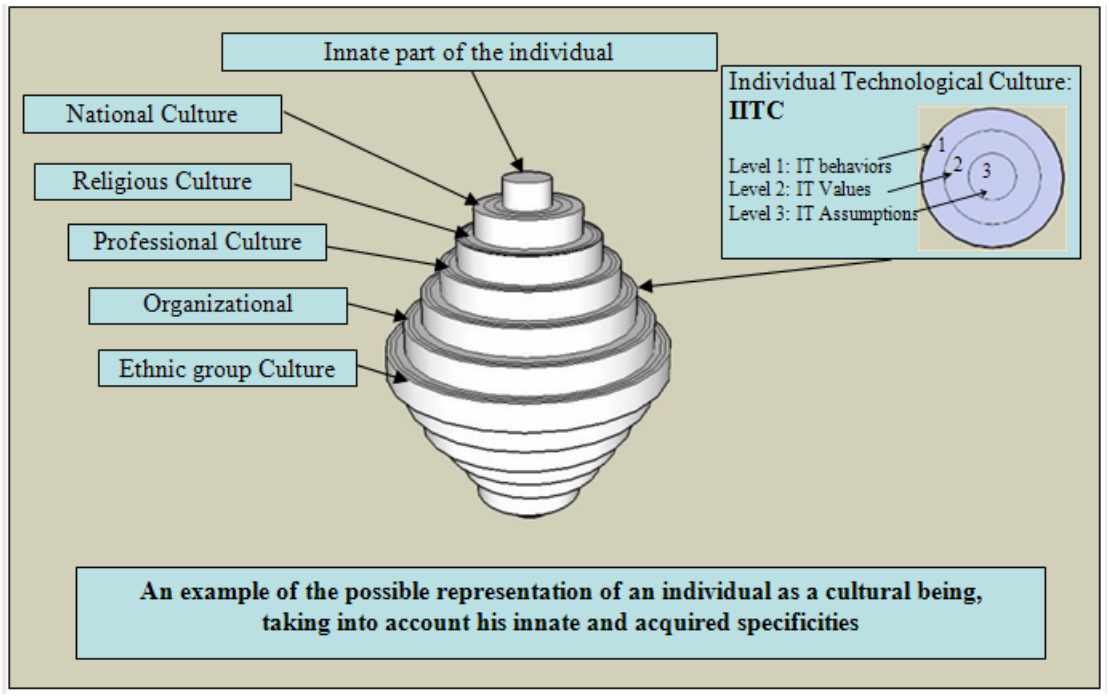
The spinning top model includes a sylinder (layer) specifically dedicated to the information technology culture of the individual (Walsh and Kefi, 2008). As illustrated in Figure 11, the individual IT cultural layer has three sublevels: IT behaviors, IT values, and IT basic assumptions (Walsh, 2009).

IT-related audible or visible behaviors are the day-to-day vectors through which values and underlying assumptions express themselves, while the underlying assumptions can be defined as values that have sedimented and have become tacitly accepted and are unquestioned by the individual (Walsh and Kefi, 2008). The most commonly retained definition of a value is "an enduring belief that a specific mode of

conduct [instrumental value] or end-state of existence [terminal value] is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973, p.5). IT value could relate to information technology in the general sense of the word, while an IT belief could relate to particular information technology. An instance of IT value could be expressed by the statement: "For me, information technology is not only a commodity, it is an important part of my life", while an instance of IT-belief could be expressed by the statement: "The new CRM will help me do my job better" (Walsh and Kefi, 2008).

IT-related assumptions and IT-related behaviors lead to IT-related values. Thus, IT behaviors are the findings of underlying IT values, and IT assumptions are IT values that have sedimented over time and have become tacit and unquestioned; therefore, individual IT culture could be assessed through IT values (Walsh, 2009). IT-related cultural values determine the individual's personal beliefs about whether he or she should engage with information technology. Specifically, cultural values define the motivating behaviors necessary for satisfying a person's needs. Thus, the individual IT culture is assessed by exploring an individual's universal needs and their motivations that are fulfilled or not by the usage of information technology (Abubakre et al., 2020).

Figure 11: The spinning top model (Walsh and Kefi, 2008)



Another emerging approach to individual culture concerns the values and visible or audible behaviors toward technology. Information technology culture conceptualized as the cultural dimension of information technology usage and adoption has been considered in the information systems literature (Odusanya, 2018). Therefore, the next section presents the concept of information technology culture.

3-3- Defining Information Technology Culture

Information technology culture (IT culture) is a concept that has been appearing in the information systems literature for the past two decades. Extending Schein's (1991) work, Walsh & Kefi (2008) define the concept of information technology culture at the group level as the set of IT-related visible or audible behaviors, IT-related values, and IT-related underlying assumptions shared by a group. At the individual level, they underline that IT culture results from the individual's membership in a given IT user group. In other words, information technology culture exemplifies a differentiated approach to culture such that it evaluates how the exposure and experiences a group of individuals shares about information technology uniquely identify them from others (Odusanya et al., 2017).

Information technology culture is considered a cultural representation of information technology usage modes that may be available within an organization. This representation is evaluated through the values attributed to IT by individuals. On the other hand, these values are assessed through their motivation and need to use IT. For a person, the need to utilize IT is usually a perceived shortage of something necessary for the focal individual. The existence of a need motivates individual behavior toward the fulfillment of that need. The greater the sense of lack regarding IT usage, the greater the desire to find a way to meet that need. Therefore, the presence of needs drives motivation, both of which explain the values ascribed to IT by the individual (Odusanya, 2015). Walsh et al. (2010) assume that information systems usage is a socially constructed phenomenon through a progressive information technology acculturation operation; this operation is a cultural learning process resulting from exposure to information technology experiences. The more IT acculturated the users are, the greater their fundamental needs are satisfied through IT usage, the more developed their IT needs, and the more self-determined their IT usage becomes (Abubakre et al., 2020).

3-4- Defining Individual Information Technology Culture

In this study, the definition, dimensions, and archetypes of individual IT culture developed by Walsh (Walsh and Kefi, 2008; Walsh et al. 2010; Walsh and Gettler-Summa, 2010) have been adopted to understand its influence on e-banking adoption.

Walsh and Kefi (2008) defined an individual's IT culture as the set of the individual's IT-related visible, audible behaviors, the individual's IT-related values, and the individual's IT-related underlying assumptions. They supposed that the technological culture does exist today in all individuals, regardless of their religion, nationality, ethnic origin, etc. Walsh (2009) developed an instrument to assess individual IT culture using their fundamental needs satisfied through IT usage, IT motivation and IT needs. Therefore, the individual IT culture can be assessed by measuring the extent to which an individual's fundamental needs are satisfied through IT usage and assessing their motivation to use IT (Walsh, 2014).

Individual IT culture was measured by Walsh (2009, 2014) through seven constructs. The constructs are 1) power needs; 2) primary needs; 3) affiliation needs; 4) accomplishment needs; 5) intrinsic motivation to know; 6) extrinsic motivation with external regulation, and 7) extrinsic motivation with identified regulation. These seven constructs make up the motivation and needs dimension used to assess IT culture. These constructs are listed in Table 3.

The individual IT culture concept has been used to understand the distinct cultural patterns associated with IT usage at the individual level. Walsh et al. (2010) demonstrated that individuals who share similar needs and motivation to use IT form specific IT culture archetypes, and identified eight IT culture archetypal patterns: the studious; the interested; the disciplined; the frightened; the disenchanted; the constrained; the players; and the dodgers. In a later study by Walsh and Gettler-Summa (2010), these cultural patterns were refined, and the authors identified two further archetypes, namely, Dangerous and Passionate. These archetypal users' profiles subgroups fall under three attitudinal groups: proactive, passive, and refusal. Table 4 summarizes these archetypal patterns and their needs and motivational attributes satisfied through IT usage.

Table 3: Definitions of the dimensions of individual IT culture (Walsh and Gettler-Summa, 2010).

Dimensions of individual IT culture		Definitions
Needs	**Primary needs**	This means the need which is close to an addiction; passion for information technology.
	Power needs	This means the need to have prestige, to influence other people's actions through individual's knowledge and mastery of information technology
	Accomplishment needs	This means the need to overcome obstacles and achieve satisfaction through the use of information technology.
	Affiliation needs	This means the need to socialize and share with others through using information technology.
Motivation	**Extrinsic motivation with identified regulation**	Refers that the individual uses information systems through self-determined choice because a person knows it is important for oneself to achieve other purposes considered important for the self. The use of technology is congruent with an individual's goals and values.
	Extrinsic motivation with external regulation	Refers to the individual being compelled to use information technology by the boss, teachers, family, and entourage. Thus, usage is not performed through an individual's free will, and it is not self-determined
	Intrinsic motivation to know	Refers to the usage of information technology motivated to surpass oneself and adequately master one's IT tools.

Table 4: The identified archetypal IT culture user profiles and their specificities (Walsh and Gettler-Summa, 2010; Walsh et al. 2010)

Attitudinal groups	Archetypal profiles	Needs satisfied through IT usage	Motivation to use IT
Pro-active groupe (Voluntary involvementpersonal commitment)	Studious	AFF, ACC, PRIM	INTKNOWIT, EXMOTID
	Interested	AFF	INTKNOWIT, EXMOTID
	Dangerous	AFF, POW, ACC, PRIM	INTKNOWIT, EXMOTID
	Passionate	AFF, PRIM	None
Passive group (Mandatory involvement)	Disciplined	AFF, ACC, PRIM	INTKNOWIT, EXMOTID
	Frightened	AFF	INTKNOWIT, EXMOTID
	Disenchanted	AFF, ACC	INTKNOWIT, EXMOTID
	Constrained	AFF	EXMOTID
	Players	AFF, PRIM	INTKNOWIT
Refusal (No involvement)	Intrinsic-dodgers	None	INTKNOWIT
	dodgers	None	None

AFF: affiliation needs; ACC: self-accomplishment needs; PRIM: primary needs; POW: power needs; INTKNOWIT: intrinsic motivation to know IT; EXMOTID: extrinsic motivation through identified regulation

The proactive group: All users of this attitudinal group satisfy different fundamental needs through IT usage and some intrinsic motivation. There are four archetypal profiles in this group: studious, interested, dangerous, and passionate (Walsh et al., 2010).

The passive group: This group includes four archetypal profiles: disciplined, frightened, disenchanted, and constrained. Users in this group will use new IT that they are compelled to use and will apply what they have been taught (Walsh and Gettler Summa 2010).

The refusal group: This group includes dodgers users (Intrinsic-dodgers, dodgers) who refuse anything to do with IT. The use of IT is avoided, as this group has no perceived need for IT and is indifferent to IT (Walsh et al., 2010).

4. Previous studies on individual IT culture

IT culture is a concept that has been appearing in the information systems literature for the past two decades, it has received the least amount of attention in the literature on IT and culture. Few studies have addressed the effect of individual IT culture on different aspects of digitalization and information systems management.

In the first study, Walsh et al. (2010) mobilized needs, motivation and self-determination theories within the context of an interpretive case to develop an IT culture users' taxonomy. This taxonomy identifies a new set of IT user cultural profiles that include both original profiles and refinements of previously identified profiles from the literature. The research was conducted in multiple settings with a grounded theory approach. The research framework identifies nine IT user profiles, studious, passionate, dangerous, interested, disciplined, frightened, disenchanted, constrained, and dodger, as members of three attitudinal groups. The attitudinal groups were pro-active, passive, and refusal. The results show how user IT culture evolves simultaneously with the emergence and development of their IT needs. In addition, the findings underscore the importance of culture-customizing organizational IT socialization, training, and evolution programs.

In a second study, Von Stetten et al. (2011) examine the effect of individual IT culture and privacy concerns on IT adoption using the example of the social network

site (SNS) Facebook. Analyzing data from a large online survey with partial least squares structural equation modeling, the results show that individual IT culture is an antecedent for privacy concerns, and the TAM sub constructs perceived ease of use and perceived usefulness.

In another study, Walsh (2014) suggests a new path to examine the use of information technology through users' IT culture and IT needs. This study investigates the predictive value for IT usage of several new constructs and shows that both expectancy-based and needs-based theories of motivation should be taken into account in acceptance models. The results show that highly information technology acculturated users may impede new technology acceptance if their situational information technology needs are overlooked.

Odusanya et al. (2017) test the extent to which the presence of particular individual IT culture archetypes influences the likelihood that benefits are realized among individuals within an organizational context. IT culture archetypes are assessed as a measure of individuals' needs and motivation to use IT at a particular point in time. This study used variables collected in an online survey to cluster our dataset, after which it grouped emerging IT culture archetypes into passive and proactive attitudinal groups, and it employed multilevel binomial logistic regression to test the effect of each attitudinal group on the likelihood that individual benefits are realized. The findings show that an increase in the number of IT archetypes in the proactive group is linked with the likelihood that benefits are realized among individuals in an organization, and the presence of more IT culture archetypes in the passive attitudinal group reduces the likelihood that benefits will be realized among individuals in that organization.

Abubakre et al. (2017) examine IT implementation from an individual IT culture perspective, identify the trajectory of individual IT culture archetypes that emerge during the implementation process and further investigate their role in facilitating successful IT implementations. This research adopts the qualitative single case study approach and draws on the implementation of a management information system in a Nigerian global bank. The findings illustrate three different individual IT culture archetypes and provide insights into their dynamic nature. The progressive weakening of two IT culture archetypes and the corresponding strengthening of the

third archetype shows how initial vision conflicts can be transformed into vision agreements.

Rowlands and Azizi (2019) aim to develop the concept of individual IT culture and its impact on information technology risk management implementations. For this purpose, a series of case studies were designed around semistructured in-depth interviews with IT managers. Grounded theory-like analysis of the case text produced a structure of conceptual categories and themes depicting the successful implementation of an IT-RM framework.

Abubakre et al. (2020) present a research model that takes individual information technology culture as a theoretical lens and personal innovativeness and experience in IT projects as theoretical constructs to predict behavior and traits that explain DE success. The model was tested using structural equation modeling by surveying a sample of digital entrepreneurs operating in the Yabacon Valley, Lagos, Nigeria. The results indicate that information technology culture is an essential predictor of achieving digital entrepreneurship success. The results also suggest that an entrepreneur's innovativeness in IT and experience in IT projects have significant negative and positive moderating effects on the relationship between IT culture and achieving DE success.

Finally, Walsh (2020) adopts a mixed-design grounded-theory approach to investigate the relationships between IT culture and different facets of IT usage – effective use and expectable use – as well as the emergence and increasing level of IT needs perceived by users in their everyday life. This study uses cross-sectional quantitative data from 666 respondents and analyzes from a variance perspective, and they also use longitudinal qualitative data from six individual case studies, which we analyze from a process perspective. The results indicate that information technology culture influences the various facets of IT usage (effective use and expectable use). To simplify these previous studies, we summarize them in table 05.

Table 5 Summary of previous studies on individual IT culture

Authors	Research Purpose	Research area (Technology examined)	Methodology	Results
Walsh et al. (2010)	Mobilized needs, motivation and self-determination theories within the context of an interpretive case to develop an IT culture users' taxonomy	Information systems (strategic computerization)	Grounded theory approach	The results show how user IT culture evolves simultaneously with the emergence and development of their IT needs
Von Stetten et al (2011)	The effect of Individual IT Culture and Privacy Concerns in IT adoption	Social network site (SNS) Facebook	Online survey Partial Least Squares Structural Equation Modeling	Individual IT Culture is an antecedent for Privacy Concerns and the TAM subconstructs Perceived Ease of Use and Perceived Usefulness.
Walsh (2014)	Examine the use of information technology through users' IT culture and IT needs	Moodle (Modular Object-Oriented Dynamic Learning Environment)	Grounded theory approach and quantitative approach (Partial Least Squares Structural Equation Modeling)	Highly information technology acculturated users may impede new technology acceptance if their situational information technology needs are overlooked.
Odusanya et al (2017)	The extent to which the presence of particular Individual IT culture archetypes influences the likelihood that benefits are realized among individuals within an organizational context	Information systems used in departments	Online survey Multilevel binomial logistic regression	An increase in the number of IT archetypes in the proactive group is linked with the likelihood that benefits are realized among individuals in an organization, the presence of more IT culture archetypes in the passive attitudinal group reduces the likelihood that benefits will be realized among individuals in that organization

Abubakre et al (2017)	Examine IT implementation from an Individual IT culture perspective	Management information system in a Nigerian global bank	Qualitative single case study approach	Three different Individual IT culture archetypes
Rowlands and Azizi (2019)	Develop the concept of individual IT culture and its impact on information technology risk management implementations	Organizational implementations of information technology risk management	Case studies Grounded theory-like	The findings produced a structure of conceptual categories and themes depicting the successful implementation of an IT-RM framework.
Abubakre et al (2020)	The Impact of IT Culture and Personal Innovativeness in Information Technology on Digital Entrepreneurship Success	Digital Entrepreneurship	Survey Structural equation modeling	Information technology culture is an essential predictor of achieving digital entrepreneurship success.
Walsh (2020)	Investigate the relationships between IT culture and different facets of IT usage – effective use and expectable use	Information technology used by students from an international, Europe-based business school	Qualitative study (six individual case studies) Quantitative study (survey, Variance perspective)	The information technology culture influences the various facets of IT usage (effective use and expectable use)

Source: made by the student

5. Summary

This chapter has reviewed different technology acceptance theories and models, the concepts concerning individual IT culture, and previous studies on individual IT culture.

First, this chapter presented the dominant theories of innovation adoption, which are used in explaining, predicting, and understanding individuals' acceptance and adoption of new technologies. These models have developed over the years and came as a result of continual attempts at model validation and extension. For instance, psychology helped to evolve the theory of reasoned action proposed by Fishbein and Azjen (1980) to explain and predict the determinants of the intended behavior of

individuals, which was extended to the theory of planned behavior (Ajzen, 1991) by adding a perceived behavioral control, which also extended to the decomposed theory of planned behavior (Taylor and Todd, 1995). Information systems and technology contributed to developing the technology acceptance model (Davis, 1986), which is an extension of the theory of reasoned action but also has an extension of TAM2 (Venkatesh and Davis, 2000), the unified theory of acceptance and use of technology (Venkatesh et al., 2003), which was extended to UTUAT2 (Venkatesh et al., 2012), and diffusion of innovations theory (Rogers, 1983). Among these models, TAM and UTAUT are selected for this study because of their wide acceptance in information technology acceptance studies and their excellent explanatory power.

Second, the review on individual IT culture has shown that in the information systems literature, most research on cultural issues pinpoints culture at the national or organizational level, while few studies have examined culture at the individual level. Social identity theory and the virtual onion model were developed to explain the notion of culture at the individual level. These models propose that an individual belongs to several subcultures, having an affiliation with various social groups at the religious, national, professional, organizational, and ethnic levels. The concept of culture is also examined at the individual level in the spinning top model. This model explains the global culture of an individual as a collection of cylinders embedded in an innate core cylindrical axis. Those cylinders relate to particular cultural layers of the individual: ethnic, organizational, national…and technological. In this study, we adopted the approach of individual IT culture proposed by Walsh et al. (2010) and Walsh and Gettler-Summa (2010). An individual's IT-culture is defined as the set of the individual's IT-related visible, audible behaviors, the individual's IT-related values, and the individual's IT-related underlying assumptions. The individual IT culture can be assessed by measuring the extent to which an individual's fundamental needs are satisfied through IT usage and assessing their motivation to use IT.

Third and finally, this chapter provided an overall review of the academic literature on studies that have investigated the effect of IITC on different aspects of information systems management. The review has shown that no empirical studies have examined the effect of individual IT culture on e-banking adoption. Furthermore, a limited number of studies have applied the individual IT culture perspective to provide insights into information technology adoption. Prior research in

the individual IT culture area has tended to focus on identifying IT culture archetypes rather than investigating the effect of the individual IT culture on IT acceptance and adoption decisions. Building on the results of the literature review, this research aimed to fill the gap in the area of e-banking adoption by customers by examining the influence of individual IT culture on e-banking adoption by Algerian bank customers.

CHAPTER THREE:
E-banking

CHAPTER THREE: E-banking

1. Introduction

The literature on e-banking adoption has developed, especially over the last two decades. With the rising importance and appearance of new technologies that simplified remote access to banks, the investigation of the determinants of e-banking use and adoption has become the domain of growing attention to researchers. Many studies have been conducted to examine the factors influencing customers' perceptions of e-banking adoption. This chapter presents the evolution, definition and types of e-banking, and trend of e-banking services in Algeria. Then, this chapter reviews previous studies on e-banking adoption to identify scholarly perspectives that make this study relevant.

2. E-banking

This section provides a background highlighting the evolution, definitions, and types of e-banking, followed by e-banking trends in Algeria.

2-1- Evolution of E-Banking

Banks are considered early adopters of technology as well as the primary movers of the technological revolution. The use of mainframes was one of the earliest applications of the computer age in banking. Later minicomputers were used to handle data such as client accounts, bank inventories, personnel records, and accounting packages that eventually evolved into spreadsheets. Technology was used as a support tool for banking operations, allowing employees to complete tasks more quickly, more conveniently, and with fewer human errors (Kondabagil 2007).

The first visible face of electronic banking was the automated teller machine, which was introduced in 1968. They have grown from simple currency dispensers to multipurpose machines that allow clients to undertake a wide range of operations, including account management, fund transfers, and bill payments (Taiwo and Agwu, 2017). The extended usage of debit and credit cards in merchants' stores using electronic point of sale technology was the next step in delivering direct customer service. Another application where technology was heavily employed was the electronic money transfers application, which was primarily used to reduce costs and

speed up payments (Hashemi Joo et al.,2019). As a result, specialized products such as corporate cash management systems were developed.

The Internet's widespread use boosted electronic banking and shifted financial services away from back-end programs and toward customer-centric front ends. Customers could now bank from the comfort of their homes thanks to the open networked environment, which provided quick global access to information, products, and services. New products such as aggregation services, bill presentation and payment, and personalized financial portals have emerged as a result of advancements in Internet technology (Kondabagil 2007). Furthermore, the evolution of software tools and hardware means has helped the development of new forms of electronic banking, namely, PC-banking, Internet banking, and mobile banking (Yakubiv et al., 2019).

2-2- E-banking Definitions and types

E-banking is the specified term for the new-age banking system (Chaimaa et al., 2021). The definition of e-banking differs between studies, in part because e-banking refers to a variety of services and types that allow bank customers to request information and conduct most retail banking transactions through a computer, or mobile phone... (Daniel, 1999). For instance, Burr (1996) defined it as an electronic connection between a bank and a customer to prepare, manage, and control financial transactions; Daniel (1999) termed e-banking as products and services offered by banks through various electronic channels to enable clients to carry out banking transactions via their cards, computers, or mobile phones. Sohail and Shanmugham (2003) found that the e-banking concept provides customers with access to accounts and information on financial products and services through a public or private network or enables them to transact business. The most commonly accepted definition of e-banking is the one given by the Basel Committee Report, which is the provision of retail and small-value banking products and services through electronic channels (Drigă and Isac, 2014). In this study, e-banking is defined as the provision of banking products and services through electronic channels, including automatic teller machines, the internet, and telecommunication.

The fundamental services associated with e-banking are viewing, checking and savings account balances, paying bills, transferring funds between accounts, requesting credit card advances, ordering checks for faster services, paying mortgages, and purchasing financial instruments and certificates of deposits (Haque et al, 2009; Singhal and Padhmanabhan, 2008).

E-banking indicates various types of services through which customers can request information or execute transactions via telephone, computer, digital television, or mobile phone depending on the customers' needs and the user device. E-banking types are:

Home banking refers to the kind of banking that permits customers to practice conducting banking transactions or obtain information about their account through a phone call. This type is based on the existence of a telephone line, customer passwords, and personal code that provide access to data. This allows customers to consult account balances, transfer money within their accounts, and conduct transactions (Drigă and Isac, 2014).

PC banking is defined as the conducting of transactions and accessing bank account information via personal computers by providing specific banking application software (Liao et al., 1999).

Internet banking, also referred to as online banking, web banking, or virtual banking, an outgrowth of PC banking, is a more developed service. It allows customers to access accounts or conduct account transactions through the website of the bank, using the internet as the delivery channel (Drigă and Isac, 2014). The difference between Internet Banking and PC Banking is that there is no need for specific installed software to access the banking service (Liao et al., 1999).

Mobile banking is defined as a form of banking that enables customers to independently produce financial transactions such as balance inquiries, fund transfers, payment of bills through mobile devices, and smartphones at the time and place that customers choose (Alalwan et al., 2017). It offers a convenient way of conducting a wide array of services, including checking account balances, monitoring accounts and the usage of credit and debit cards, and invoice payment. Individuals now have complete control over their bank accounts thanks to mobile banking, which has

improved customer satisfaction while lowering bank service costs (Owusu et al., 2020).

Smartcard banking is the use of electronic cards (Value Card, ATM Card, Debit Card, Credit Card, etc.) To undertake banking transactions. An electronic card is a physical plastic card that identifies the cardholder. It is used for online financial transactions, which include point-of-sale and Automated Teller Machine, which are utilized to authorize payments to sellers (Chimaobi, 2018).

Point of Sale: In this technique, consumers are given online cards that may be inserted into special electronic equipment to make payments (Nwakoby et al., 2020).

As a result, e-banking encompasses Real-Time Gross Settlement, Electronic Fund Transfer, Electronic Clearing Service, Credit and Debit Cards, Cheque Truncation, Automated Teller Machines, Telebanking, Internet banking, and Mobile banking (Madhavan, 2018).

2-3- E-banking in Algeria

Algeria is considered a country that has acknowledged the several benefits of information and communication technology and has thus made it one of its major primacies. Concerning the banking sector, the Algerian government has introduced many reforms since the early 1990s to enhance the national economy, boost the effectiveness of Algeria's monetary policy (Bellal, 2008), and promote e-banking in the country. In this context, the Algerian government created the Company of Automation of Interbank Transactions and Monetics (SATIM) in 1995. The SATIM managed the Interbank Automated Teller Machines Network; it contributed to the establishment of a technical and organizational platform for the digital monetary chain, accompanying banks in the development of electronic cash services. The number of participants in this company is estimated at 19 participants, 16 banks, and the Algeria Post (Benlakehal, 2021). Subsequently, the Algerian banking system began to introduce the Automated Teller Machines (ATM) in 1997. In 2021, the number of atms was 3030 (GIE Monétique).

In 2006, the Bank of Algeria, in cooperation with the Ministry of Finance, introduced the system of Instant Gross Settlement System and Electronic Payment

Clearing System (Algérie-Télécompensation Interbancaire). The system of the instant gross settlement system is a system of interbank payment orders using a bank or postal transfers for large amounts or immediate payments, which is realized among the participants in this system (banks, financial institutions, public treasury, and Algeria Post). The Electronic Payment Clearing System permits the exchange of all payment methods associated with public payments (checks, trade papers, automatic deductions, card operations) (Benlakehal, 2021).

In 2014, the government created the Economic Interest Group (GIE) to overcome the shortcomings of SATIM, establish a legal framework and develop the electronic platform and services in Algeria with the objectives of generalizing the use of modern means of payment, including debit/credit cards and online payments. This will further ensure the standardization of e-banking products and systems (TES, 2015).

To keep up with the reforms introduced by the Algerian government, several banks have tried to diversify their services by offering "electronic banking" services (e-banking). This new service has aimed to reduce the cash held that is used by the public and small businesses, i.e., Diminish liquidity within the market and offer more functionality to its clients as well as reinforce the image of modernity of the Algerian banking sector in the international marketplace (Zerhouni, 2016).

Despite these efforts by the Algerian Government, the adoption of e-banking in Algeria is in its infancy stage (Lazreg, 2015). Thus, it is important to understand the factors that affect Algerian customers to adopt and use e-banking services. To identify the determinant of e-banking adoption and use, prior studies have been based on the dominant theories of innovation adoption, such as the technology acceptance model (TAM) (Lee, 2009; Rawashdeh, 2015; Roy et al., 2017) and the unified theory of acceptance and use of technology (UTAUT) (Alalwan et al., 2017; Merhi et al., 2019; Rahi et al., 2019). Therefore, in the next section, we will discuss previous studies on e-banking adoption.

3. A systematic review of e-banking adoption studies

This section reviews the previous studies on e-banking adoption and classifies them according to the following criteria: journals and conferences; year of

publication; countries; electronic banking types; research design; data collection method; data analysis method; and framework theory.

3-1- Previous studies on e-banking adoption

Several researchers have tried to identify the factors affecting e-banking adoption and use based on technology acceptance theories, which are indicated in the second chapter. Prior studies on e-banking adoption are discussed next.

In the first study, Yiu et al. (2007) investigate the influences of perceived usefulness, perceived ease of use, perceived risk, and personal innovativeness in information technology on the adoption of internet banking by customers in Hong Kong. This researcher executed a quantitative study with 150 questionnaires, and the hypotheses were tested using a t-test and Pearson's correlation. The results showed that perceived usefulness, perceived ease of use, personal innovativeness in information technology, and perceived risk have a direct relationship with the adoption of internet banking in Hong Kong. Although this study examined the direct impact of four factors on e-banking adoption, it did not consider the effect of the median variables, such as attitudes and behavior intention.

In the second study, Al-Somali et al. (2009) aim to identify the factors that motivate customers to adopt and use online banking in Saudi Arabia. With this aim, the research model was developed based on the technology acceptance model. Partial least squares structural equation modeling was applied to analyze the data collected from a survey of 400 customers. The results of the study indicate that the quality of the Internet connection, awareness of online banking and its benefits, social influence, and computer self-efficacy have significant effects on the perceived usefulness and perceived ease of use of online banking adoption. Education, trust, and resistance to change also have a significant impact on the attitude toward the likelihood of adopting online banking. Although the current study integrated the TAM with additional variables, the model can be extended with additional external variables, such as facilitating conditions.

In other studies, Chong et al. (2010) aimed to assess the impact of perceived usefulness, perceived ease of use, trust, and government support on the intention to adopt internet banking in Vietnam. The required data were collected through customer surveys and from a sample of 103 respondents. Data were analyzed by employing

correlation and multiple regression analysis. The results showed that perceived usefulness, trust, and government support were all positively associated with using online banking in Vietnam. Although this study identifies the factors that affect the adoption of internet banking in Vietnam, it has some limitations. The factors selected may not cover all the reasons that could influence the adoption of the internet banking scenario in Vietnam, such as factors related to cultural issues, and this study was limited to assessing the intention to use internet banking instead of assessing actual internet banking use.

Hacini et al. (2012) conducted a survey on 332 Algerian bank customers to investigate an extended technology acceptance model. The results of multiple linear regression analysis revealed that perceived usefulness, perceived ease of use and perceived trust have a positive significant effect on Algerians' intention to use internet banking. This study has contributed to the overall understanding of the factors related to the adoption of internet banking in Algeria. It did not incorporate actual user behavior in the proposed model and was restricted to the intention to use internet banking.

Riffai et al. (2012) explore the factors that influence Omani consumer acceptance of online banking through the use of a theoretical framework built on the unified theory of acceptance and use of technology. A total of 315 valid questionnaires were collected. The survey data were electronically imported into a statistical software package, SPSS, and Microsoft Excel for analysis and graphical presentation of the results. The findings found that trust, usability, and perceived quality are deemed key factors that influence online banking. The constraints of this study are that the demographic profiles of this study are of a group of relatively young users. This could negatively reflect the applicability of the results to other segments of the population. In addition, the data were analyzed using descriptive statistical analysis, and it was better to analyze the data using structural equation modeling.

Santouridis and Kyritsi (2014) aim to identify the key factors that influence Greek bank customers' intention regarding internet banking adoption by developing a theoretical model based on the technology acceptance model. Field research was conducted by utilizing a survey collected from 266 Greek bank customers. The results of linear regression analysis confirmed the significant influence that customer perceptions about usefulness, credibility, and ease of use of internet banking have on

intentions toward using this banking channel. Moreover, domain-specific innovativeness and satisfaction with atms were also proven to be strong predictors of customer use intentions. This study has some limitations; it focused on the measurement of intention rather than the actual use of Internet banking. Moreover, the total sample was fairly small. This, in turn, could negatively reflect the generalizability of the results of this research. Furthermore, the data were analyzed by employing linear regression analysis. Consequently, misleading results could be obtained. Therefore, another model should be utilized that is more appropriate for samples of this size, such as the partial least square (PLS) modeling technique.

Rawashdeh (2015) investigates Jordanian accountants' behavioral intention to use internet banking services. The questionnaire was used to survey a randomly selected sample of Jordanian accountants from the website of the Jordan Association of Certified Public Accountants, and 298 usable responses were obtained. The results of structural equation modeling analysis indicated that perceived ease of use, perceived web privacy, and perceived ease of use are the predicting variables that affect perceived usefulness. Attitude toward use was the intervening variable, and behavioral intention toward using internet banking was the dependent variable. Perceived usefulness, perceived ease of use, and perceived web privacy exert a direct as well as indirect effect on behavioral intention. This study extended the TAM model only with perceived web privacy. Therefore, it ignores other factors that affect the adoption of Internet banking services, such as facilitating conditions and social influence.

Bellahcene and Khedim (2016) examine the acceptance of e-banking by Algerian bank consumers using the technology-personal-environment model (TPE). To test the hypotheses, a quantitative approach based on a cross-sectional survey was used to collect data from 119 bank consumers in Algeria. The results of binomial logistic regression analysis indicate that age, profession, income, and perceived security are the main factors affecting e-banking systems adoption in Algeria. One of the limitations of this research is the relatively average size of the sample.

Chaouali et al. (2016) aim to shed light on the roles of counter conformity motivation, social influence, performance expectancy, effort expectancy, and trust in explaining customers' intention to adopt Internet banking services in Tunisia. Data were collected from 245 respondents by a survey and analyzed using partial least

squares structural equation modeling. The results indicate that the intention to adopt Internet banking is influenced by trust and by customers' counter conformity motivation and performance expectancy. Social influence and trust in the physical bank, however, have indirect impacts on customers' intention to adopt Internet banking. Despite its scientific value, this study is not without limitations. Even if this study has measured intention, it does not address the actual use of Internet banking. In addition, the research sample was composed of students rather than real bank customers.

Tarhini et al. (2016) examine the factors that may hinder or facilitate the acceptance and usage of internet banking in Lebanon through the use of a conceptual model based on the UTAUT. To test this model, a quantitative approach based on a cross-sectional survey was used to collect data from 408 internet banking consumers. The results of structural equation modeling analysis revealed that performance expectancy, social influence, perceived credibility, and task-technology fit are significant predictors in influencing customers' behavioral intention to use internet banking. The limitations of this study concern the generalizability of the results since this study was based on a nonprobabilistic sampling technique. Additionally, the users were mostly experienced in using the technology, which could cause a selection bias.

Szopiński (2016) aims to identify the effect of trust, possession of other bank products, age, level of education, use of the internet, and income on the use of online banking in Poland. A "Social Diagnosis" research project, which the Board of Social Monitoring Operating at the University of Finance and Management in Warsaw carried out in 2015, serves as the source of empirical material for this study. Linear regression analysis covered 8663 respondents. The findings found that the factors that mostly determine the use of online banking are the use of the Internet, taking advantage of other banking products, and trust in commercial banks. The limitations of this study are the number of aspects that the study takes into account and does not allow for further exploration of the questions concerning the use of online banking, such as perceived security, perceived ease of use, or perceived usefulness.

Munoz-Leiva et al. (2017) investigate the factors that influence user intention of mobile banking applications in Spanish. They develop a theoretical model that integrates the diffusion of innovation theory, perceived risk, and trust in the classic technology acceptance model. The data were collected from an online survey (103

surveys) and tested using structural equation modeling. The results demonstrate that attitude, perceived ease of use, social image, and perceived trust determine the use of mobile apps. This research has some limitations. First, it has focused on the measurement of an intention, not on measuring actual behavior. Furthermore, the total sample was consequently fairly small, which could negatively reflect the generalizability of the results of this research.

Alalwan et al. (2017) explore the factors influencing the adoption of mobile banking by customers in Jordan. The proposed model has assimilated factors from the extended unified theory of acceptance and use of technology2 along with trust. The data were collected by conducting a field survey questionnaire completed by 343 participants. The collected data were analyzed using structural equation modeling. The results mainly showed that behavioral intention is significantly influenced by performance expectancy, effort expectancy, hedonic motivation, price value, and trust. Even though this study represents a fruitful attempt in the area of adoption and use of mobile banking, it is restricted by several limitations. For instance, this study only covered one online banking channel (mobile banking). This could mitigate the applicability of the current study's results to other types of electronic channels across other contexts.

Mwiya et al. (2017) examine the determinant of e-banking adoption in Zambia by the modified technology acceptance model. The data were collected from 222 bank customers. The findings of multiple regression analyses indicate that perceived usefulness, ease of use, and trust each significantly positively influence attitude toward e-banking. In turn, attitude toward e-banking influences the intention and actual adoption of e-banking services. One of the limitations of this study is that the data analysis was limited to multiple regression, although the research model includes several relationships and medium variables, rather than using other statistical analyses showing causal relationships between variables and obtaining better findings.

Makanyeza (2017) investigates the determinants of consumers' intention to adopt mobile banking services in Zimbabwe. A research model was developed based on the technology acceptance model and the unified theory of acceptance and use of technology. To test the hypotheses, a survey of 232 bank customers was conducted, and structural equation modeling, independent-sample t-test, and one-way ANOVA were used. The findings found that perceived usefulness, perceived self-efficacy,

social influence, relative advantage, and perceived compatibility all have a positive effect, while perceived risk has a negative effect on behavioral intention to adopt mobile banking services in Zimbabwe. Perceived ease of use, facilitating conditions, perceived complexity, perceived trialability, awareness-knowledge, and demographic factors (gender, age, education, and income) did not significantly influence behavioral intention to adopt mobile banking. Perceived ease of use was found to positively influence perceived usefulness, while perceived self-efficacy was found to positively affect perceived ease of use. Behavioral intention was found to positively influence the usage of mobile banking services in Zimbabwe. One limitation of this research is that data were collected from bank customers in Chinhoyi, one of the emerging towns in Zimbabwe, which negatively reflects the generalizability of the results.

In Nigeria, Salimon et al. (2017) explore the combined roles that perceived usefulness, perceived ease of use, perceived security, and hedonic motivation play in the adoption of e-banking. Data were collected from the users of e-banking. A total of 266 questionnaires were analyzed using partial least square structural equation modeling. The empirical findings revealed a significant and positive relationship between perceived usefulness, perceived security, and e-banking adoption. Although this study tries to understand the factors that influence Internet banking adoption in Nigeria, the variables elected may not cover all the reasons that could influence the adoption and use of internet banking.

Roy et al. (2017) integrate the technology acceptance model and perceived risk theory in understanding customers' intention to adopt Internet banking by Indian bank account holders. Partial least squares structural equation modeling was conducted to analyze the data collected from a sample of 270 customers. The results show that perceived ease of use and perceived risk are two important factors determining how well internet banking is accepted by customers. While this study contributes to the existing body of knowledge on customer acceptance of Internet banking, it also has some limitations. This study has focused on the measurement of an intention to adopt Internet banking, not on measuring the actual use of Internet banking. Additionally, this study is limited to investigating the role of a few endogenous constructs for parsimony.

Marakarkandy et al (2017) aim to determine the antecedents of the constructs of the technology acceptance model. A total of 300 responses were collected using a survey questionnaire administered to users of internet banking in India. Structural equation modeling was used to test the data. The findings show that subjective norms, image, bank initiative, internet banking self-efficacy, internet usage efficacy, trust, perceived risk, and government support have a significant impact on internet banking adoption. Although this study attempts to identify the factors affecting internet banking adoption in India, it has some limitations. The sample description showed that the largest segment of the respondents in the current study was young and well-educated. Therefore, this raises concerns regarding the applicability of the results to other segments of the current population that have different characteristics.

Chawla and Joshi (2018) analyze the impact of demographic characteristics on user attitude toward mobile banking in India. They propose a model combining the technology acceptance model and the unified theory of acceptance and use of technology as a reference for explaining user attitude toward mobile banking adoption. The sample of this study comprises 367 users of online banking. To test the hypotheses, multiple linear regression and Fisher Z transformation are used. The results show that each of the independent variables has a positive and significant influence on the attitude toward mobile banking. In addition, the findings found that gender, age, qualification, experience, occupation, income, and marital status were significant moderating variables. This study is limited to looking at the relationship between the antecedent variables and attitude toward mobile banking adoption and the moderation effect of various demographic variables not looking at the relationship between the antecedent variables and actual use and adoption of mobile banking adoption.

In other studies in Jordan, Alalwan et al. (2018) examine the factors influencing Jordanian customers' intentions and adoption of internet banking. The conceptual model proposed was based on the extended unified theory of acceptance and use of technology2. Structural equation modeling was conducted to analyze the data collected from the field survey questionnaires administered to 348 Jordanian banking customers. The results show that behavioral intention is significantly influenced by performance expectancy, effort expectancy, hedonic motivation, price value, and

perceived risk. This study concentrated on the measurement of internet banking intention while ignoring the measurement of the actual use of internet banking.

Yaseen and El Qirem (2018) investigate the factors influencing the adoption of e-banking services by customers. This study integrates the unified theory of acceptance and use of the technology model2 and the Perceived e-banking services quality variable. The data were collected from a sample of 348 Jordanian banks' clients and were analyzed using multiple regression analysis. The results found that effort expectancy, social influence, and perceived e-banking service quality are significant predictors of intention to use e-banking services in Jordan. Although this study examines the essential factors influencing the adoption and use of e-banking services, it has several limitations; this study did not examine the moderating effects of demographic characteristics (gender, age, educational level, and experience)

Patel and Patel (2018) explore the impact of constructs of the technology acceptance model, perceived security, and social influence on internet banking adoption in Gujarat. Using a questionnaire survey, data were collected from 284 users of internet banking services and subjected to structural equation modeling to identify important factors influencing internet banking adoption. The results of this study showed that the intention to use internet banking is positively influenced mainly by perceived security, followed by other significant factors, namely, perceived usefulness, perceived ease of use, and social influence. One of the limitations of this study is that the final structural model of this study explained only 45 percent of the variance in intention to use internet banking due to proposed factors. Therefore, the model can be extended with additional external variables, such as facilitating conditions and cultural dimensions.

Namahoot and Laohavichien (2018) examine the effect of service quality, perceived risk, and trust on the behavioral intentions to use internet banking in Thailand. A multistage sampling procedure was performed to select the 505 respondents for this study. The findings of structural equation modeling analysis show that service quality, perceived risk, and trust influence behavioral intentions to use internet banking. Despite this study showing the significance of internet banking service quality and understanding the phenomenon of influence between perceived risk and trust on the relationship between service quality and behavioral intentions to use internet banking, it has several limitations. This study was limited to examining

the impact of service quality, perceived risk, and trust; therefore, it ignores the effect of other individual factors that influence internet banking use, such as perceived usefulness and perceived ease of use. In addition, it is limited to assessing the intentions to use internet banking rather than assessing the actual use of internet banking.

In other works in Pakistan, Afshan et al. (2018) examine the factors that affect internet banking adoption using the technology acceptance model with the integration of risk dimensions and the initial trust model. A total of 339 responses were collected by using an online questionnaire. Structural equation modeling was applied to investigate the research model. The results found a significant effect of personal propensity to trust, structural assurance, and familiarity with the bank in influencing the initial trust of people to accept internet banking. One of the limitations of this study is that it does not measure perceived risk as a formative model.

Rahi and Ghani (2018) develop an integrated model that combines technology, innovation, and environmental factors to understand customers' intention to adopt internet banking. A total of 398 valid responses were collected from customers of commercial banks in Pakistan. Data were analyzed using structural equation modeling. The findings show that innovativeness and perceived technology security were the most important factors in determining users' intention concerning the adoption of internet banking. Although this study adds to the existing body of knowledge, it has some limitations. It developed an integrated innovative model that combines factors of diffusion of innovation and the unified theory of acceptance and use of technology with perceived technology security to explain the intention to adopt internet banking instead explains the actual use of internet banking. This study excluded social influence and facilitating condition constructs from the original UTAUT. However, adding moderating variables such as age and gender could reveal significant results.

Rahi et al. (2019) aimed to identify the factors that influence user intention to adopt internet banking. With this aim, this study develops a research model based on the unified theory of acceptance and use of technology. The research framework was tested using structural equation modeling on 398 responses from customers of commercial banks. The findings of this study show that assurance is the most influential factor among all others in determining users' intention to adopt internet

banking, and both website design and customer service have a significant influence on performance expectancy and effort expectancy toward the use of internet banking in Pakistan. This study used intention to adopt as a dependent variable to measure the acceptance of internet banking, rather than using actual usage of internet banking as a dependent variable.

Baabdullah et al. (2019) explore the main factors that could predict the use of mobile banking in Saudi Arabia by developing a conceptual model that combines two models (unified theory of acceptance and use of technology2 and the D&M IS success model). A survey was conducted to collect data from 429 bank customers, and structural equation modeling was applied to test the research model. The results found that performance expectancy, price value, facilitating conditions, hedonic motivation, habit, system quality, and service quality have a significant impact on the actual use of mobile banking. This study adopted convenience sampling of Saudi m-banking users. This may adversely impact the issue of generalizability to the whole population.

In Lebanon and England, Merhi et al. (2019) examine the key factors that may hinder or facilitate the adoption of mobile banking services in a cross-cultural context. A conceptual model was developed by extending the unified theory of acceptance and use of technology2 by incorporating three additional constructs, namely, trust, security, and privacy. Data were collected using an online survey and a self-administered questionnaire from 901 mobile banking users who were either Lebanese or English. These were analyzed using structural equation modeling. The findings indicated that behavioral intention toward mobile banking services adoption was influenced by habit, perceived security, perceived privacy, and trust for both the Lebanese and English consumers. In addition, performance expectancy was a significant predictor in Lebanon but not in England, whereas price value was significant in England but not in Lebanon. This study was limited to assessing the intention to use mobile banking services instead of assessing actual mobile banking use.

Ahmad et al. (2019) explored the effect of e-service quality on the actual use of e-banking services through an integrated model based on the technology acceptance model in Pakistan. A survey was conducted, 493 questionnaires were collected from e-banking users, and the data were analyzed using structural equation modeling. The results of the study indicate that e-service quality positively affects perceived

usefulness, perceived ease of use, and intention to use e-banking, and perceived usefulness positively affects attitude toward using e-banking and behavioral intentions to use e-banking. Perceived ease of use affects attitudes toward e-banking, attitudes positively affect behavioral intentions to use e-banking, and behavioral intentions further positively affect actual use of e-banking. The sequential mediation of attitude and intention has been confirmed between e-service quality and actual use of e-banking. One of the limitations of this study is that it ignores the impact of social and demographic variables. Additionally, other antecedents, such as the role of IT culture dimensions, could be added to the model.

Anouze and Alamro (2019) aim to identify the factors that affect the adoption of e-banking in Jordan. For this purpose, a theoretical model was developed based on the technology acceptance model. To test this model, a survey was used and distributed to bank customers, collecting a total of 328 completed questionnaires. Structural equation modeling was used, and multiple regression and artificial neural networks were applied to determine the relative impact and importance of e-banking predictors. The results of this study show that perceived ease of use, perceived usefulness, security, and reasonable price affect the intention to use e-banking services in Jordan. One of the limitations of this study is based on one adoption theory (TAM). Moreover, examining other theories would greatly support decision-makers and researchers in Jordan and did not examine the moderating effects of demographic characteristics.

Chauhan et al. (2019) aimed to understand consumers' intention to adopt internet banking in India. The study adopted the technology acceptance model with additional constructs. The data were collected through a questionnaire (487 usable responses) from Indian consumers. A structural equation modeling approach was used to analyze the data. The results show the significant positive influence of perceived usefulness, ease of use, attitude, consumer innate innovativeness, and domain-specific innovativeness on consumers' intention to adopt internet banking. The study is limited to users of a particular region of India. Furthermore, the study limits itself to determining consumers' intention only, not actual usage.

Sharma et al. (2020) investigate the intention to adopt internet banking by customers under the influence of user-espoused cultural values in Fiji. A conceptual model is developed by extending the unified theory of acceptance and use of the

technology model, incorporating perceived risk and customer satisfaction constructs and cultural moderators of individualism and uncertainty avoidance. This research collected data from 530 respondents. The proposed model is tested using structural equation modeling. The findings obtained found that internet banking adoption is positively influenced by the levels of performance expectancy, effort expectancy, social influence, and facilitating conditions, while perceived risk negatively influences internet banking usage intention. Internet banking intention was found to positively impact usage behavior, which ultimately impacts customer satisfaction. This study also reveals that uncertainty avoidance dampens the influence of performance expectancy and facilitating conditions on internet banking adoption intention. Despite the proposed research model being developed based on a rich theoretical background, this study has limitations. The generalizability of the results should be done with caution, as the data in this research were collected using a convenience (nonprobability) sampling technique. Although the sample is strong based on size and diversity, upon examining the demographic profile of the respondents, the results show that the majority of the respondents have high levels of education. In addition, this study has measured intention to adopt internet banking, rather than measuring actual usage of internet banking.

Kaur and Arora (2020) aimed to identify the factors affecting customers' adoption and use of online banking in India. For this purpose, the conceptual model was proposed via the unified theory of acceptance and use of technology 2 along with its interactionist relationship with trust and perceived risk. The structural equation modeling technique is used to analyze data collected from 677 bank customers. The results indicate that perceived risk as a multidimensional construct has a direct and indirect impact on behavioral intention via performance expectancy, social influence, hedonic motivation, and price value. Moreover, it was found that trust moderates the relationship between perceived risk and behavioral intention. Despite this study proposes an interactionist model between perceived risk and trust, the key moderators of UTAUT2 (i.e., Age, gender, and experience) were not considered.

Teka (2020) tries to identify factors that affect customers' usage of electronic banking services in Ethiopia. A research model was developed by integrating the technology acceptance model and theory of planned behavior. A total of 420 actual users of e-banking services were used as a sample. The data analyzed using structural

equation modeling revealed that perceived usefulness, perceived ease of use, attitude toward e-banking, perceived behavioral control, subjective norms, behavioral intention, awareness and the availability of internet/network connections have a significant positive impact on e-banking use. However, perceived risk has a significant negative impact. One limitation of this study is the exclusion of the voices of nonusers (those who are not using e-banking).

Krishna Murthy and Varalakshmi (2021) examine the effect of trust, security, privacy, and risk factors on online banking services adoption in Oman. A total of 311 valid questionnaires were collected. Partial least square structural equation modeling was used to evaluate the conceptual model. The study concluded that customers' trust factors and risk factors while using online banking services have a significant positive relationship with the adoption of online banking services. Although this study has investigated the impact of trust, security, privacy, and risk factors on the adoption of online banking services in Oman, it ignores medium variables such as behavioral intention and attitude.

Khan et al. (2021) examine and compare online banking acceptance in the cultures of Pakistan and Turkey by employing the unified theory of acceptance and use of technology2. This study further investigates the moderating influence of five cultural dimensions on customers' usage behavior. Data were collected through a questionnaire from 322 bank customers in Pakistan and 405 in Turkey. Partial least squares structural equation modeling was used to analyze the relationships among the constructs. The results show that performance expectancy, hedonic motivation, habit, and perceived credibility are determinants of online banking acceptance in Pakistan, whereas performance expectancy, social influence, price value, habit, and perceived credibility are the factors affecting Turkish bank customer intentions. The results of the cultural moderators show that collectivism and long-term/short-term orientation affect customers' usage behavior in Pakistan, while uncertainty avoidance, power distance, and masculinity/femininity moderate the usage behavior of Turkish customers. Despite this study identifying and analyzing the key factors affecting customers' use and adoption of E-banking in Turkey and Pakistan, it has some limitations. The first is the use of convenience sampling; the data were obtained from the capital city of Pakistan and the capital city of Turkey, and using such locations may restrict the generalizability of the findings to other cities. The second limitation is

the use of students and teachers in the sample, which limits the wider application to other demographic portions of societies.

Firmansyah et al. (2022) used the technology acceptance model to determine the rate of mobile banking adoption in Indonesia. The data were collected from 137 users of M-Banking in Indonesia, and structural equation modeling was used to estimate the relationship between variables with the TAM model. The findings of this study show that the influence of self-efficacy on perceived ease of use, self-efficacy and perceived credibility on attitudes toward use, and attitudes toward use on adoption intentions provide significant value. It can be concluded that users are confident and trusting in themselves when using the m-banking application. Still, users do not feel the ease and usefulness offered by the m-banking application in Indonesia. This study focused on measuring intent rather than the actual use of mobile banking, and the total sample size was relatively small. This, in turn, could negatively reflect the generalizability of the results of this research.

Finally, Khan (2022) examines the influence of culture on digital banking in Pakistan and China. The unified theory of acceptance and use of technology2 along with customer support was chosen as a theoretical lens to address the determining factors covering both the positive and negative aspects of digital banking adoption. Using an online survey, 360 bank customers from Pakistan and 410 customers were selected from mainland China. Data were analyzed through smart-PLS using structural equation modeling. The study finds that improvement in performance, hedonic motivation, habit, and customers' perception of receiving real-time support from banks were the crucial factors for Pakistani customers. Meanwhile, Chinese customers were attracted to digital banking owing to societal influence, cost factors, habitual work, and banks' mechanisms for supporting their customers. The cultural effect was also significant in determining the ultimate use of digital banking. This study focused on the culture and how it affects digital banking in Pakistan and China. Although the study has attempted to comprehensively cover the topic, several limitations persistently confine the generalizability and replicability of the study. The major focus of this study was a sample of students and teachers of universities for deriving the results, but it might limit the generalizability.

3-2- Common qualities of the previous studies on e-banking adoption

This review involved 38 studies (Table 6). The studies are further investigated by the journals and conferences, year of publication, country, electronic banking types, research design, data collection method, data analysis method, and framework theory.

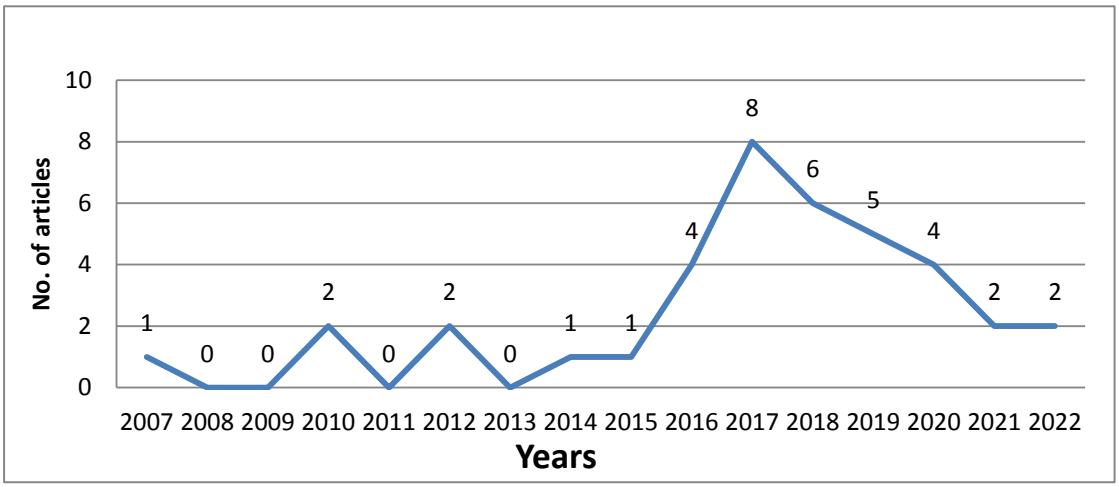
2-2-1- Distribution of studies by journals and conferences

Table 7 shows the distribution of the articles in journals, the time period, and the number of articles published during the period under investigation. All studies (38) were published in journals.

2-2-2- Distribution of studies by year of publication

The distribution of studies according to their year of publication, from 2007 to 2022, is shown in Figure 12. We found that only a few of the research on e-banking adoption was published in the period from 2007 to 2015. Thereafter, the interest of researchers in this field increased considerably, which is reflected by a significant increase in the number of papers published on this topic after 2016. The highest number of studies focusing on this topic was published in 2017 (8 studies).

Figure 12: Distribution of studies by year

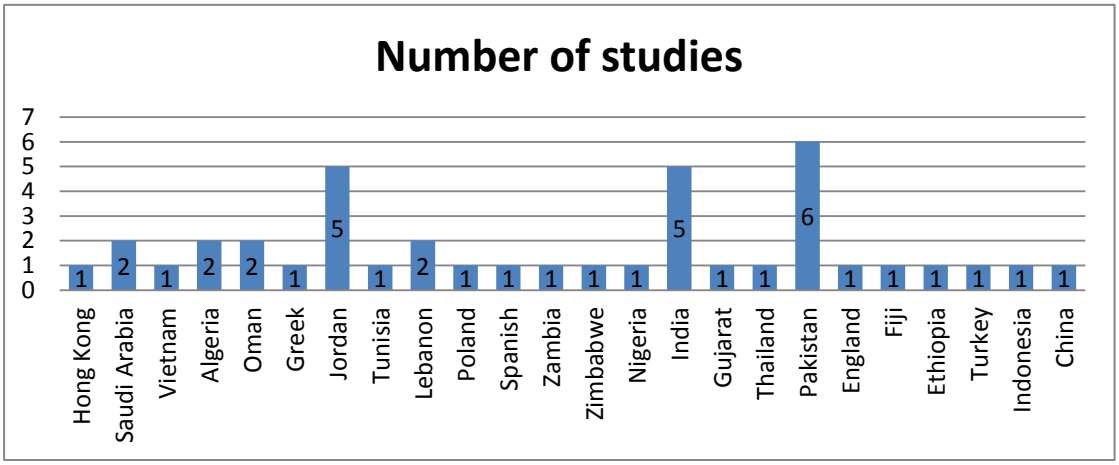


Source: made by the student

2-2-3- Distribution of studies by country

As shown in Figure 13, the frequency of literature on e-banking adoption in the world reviewed in this study fairly indicates that most of the research is concentrated in Pakistan (6 studies), Jordan (5 studies), and India (5 studies). Only two studies were concentrated in Algeria.

Figure 13: Distribution of studies by country



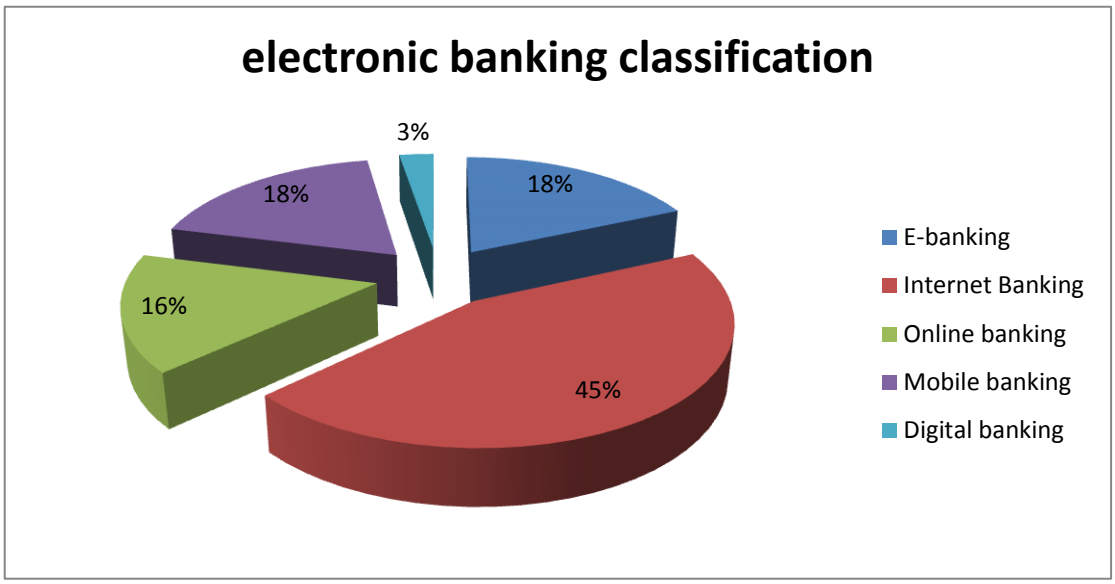
Source: made by the student

2-2-4- Distribution of studies by electronic banking types

The studies are classified into five different types of electronic banking, namely, internet banking, online banking, e-banking, mobile banking, and digital banking (see Figure 14).

The majority of the studies (17 out of 38 studies, which form 45% of the total) are related to Internet Banking. Only one study (3%) is related to digital banking, seven (18%) are related to e-banking, seven (18%) are related to mobile banking, and six (16%) are related to online banking.

Figure 14: Distribution of studies by electronic banking types



Source: made by the student

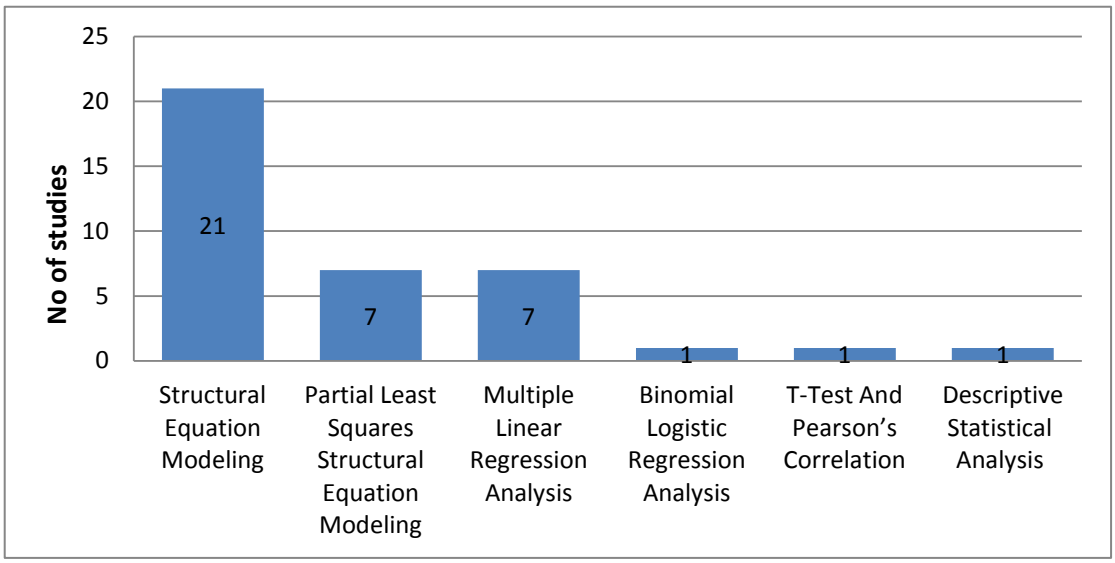
2-2-5- Distribution of studies by research design and data collection method

As shown in Table 6, all of the studies used a quantitative research design and questionnaire as their data collection instrument.

2-2-6- Distribution of studies by data analysis method

The empirical research papers are also analyzed in terms of the methods used in the data analysis. The majority of the studies (21 studies) used structural equation modeling. Seven studies used partial least squares structural equation modeling, seven used multiple linear regression analysis, and one used T-test and Pearson's correlation. Additionally, one used binomial logistic regression analysis, and the latest study used descriptive statistical analysis (see Figure 15).

Figure 15: Distribution of studies by Data Analysis Method

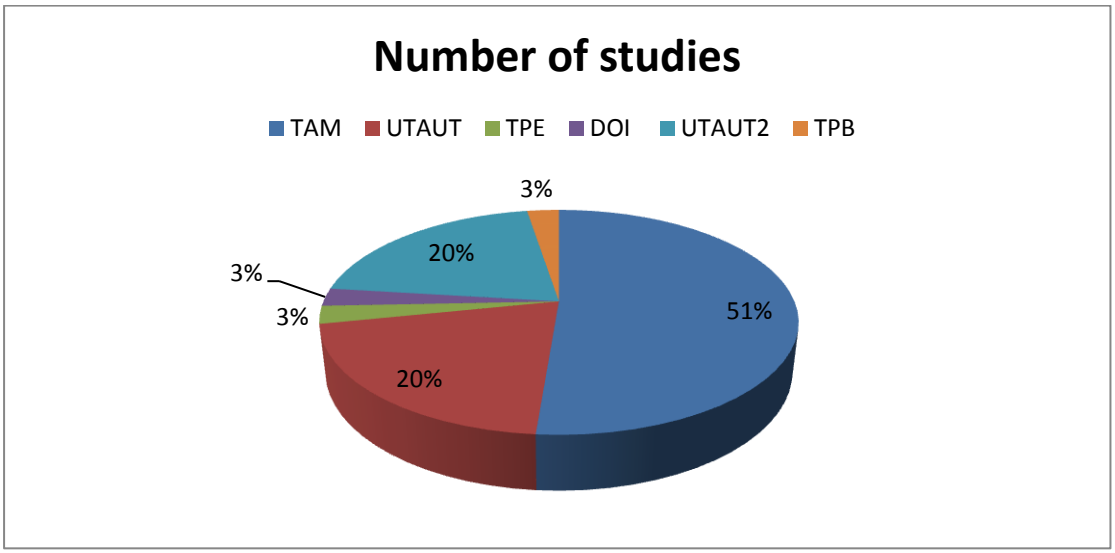


Source: made by the student

2-2-7- Distribution of studies by framework theory

As shown in Figure 16, most of the studies (51%) have used the TAM model as a theoretical framework. 20% of studies used the UTAUT model, and 20% of studies used the UTAUT2 model.

Figure 16: Distribution of studies by framework theory



Source: made by the student

Table 6 Summary of previous studies on e-banking adoption

Study	Country	Method	Data Collection	Data Analysis	Classification of e-banking	Framework/ Theory	Findings		
Yiu et al. (2007)	Hong Kong	Quantitative	Questionnaire	T Test And Pearson's Correlation	Internet banking	TAM	PU PEU PI PR	(+) (+) (+) (+)	— > AIB — > AIB — > AIB — > AIB
Al-Somali et al.(2009)	Saudi Arabia	Quantitative	Questionnaire	Partial Least Squares Structural Equation Modeling	Online banking	TAM	QI AW TR SI RC SE Age Gender Education Income PEOU PU PEOU PU ATB	(+) (+) (+) (+) (+) (+) (.) (.) (+) (.) (+) (+) (+) (+) (+)	—>PEOU — > PU — > ATB — > PU — > ATB —>PEOU — > ATB — > ATB — > ATB — > ATB — > PU — > ATB — > ATB — > BI — > BI
Chong et al (2010)	Vietnam	Quantitative	Questionnaire	Multiple Linear Regression Analysis	Internet banking	TAM	PU PEOU I TR	(+) (+) (+) (.)	— > BI — > BI — > BI — > BI
Hacini et al (2012)	Algeria	Quantitative	Questionnaire	Multiple Linear Regression Analysis	Internet banking	TAM	PEOU PU TR	(+) (+) (+)	— > BI — > BI — > BI

							SE	(.)	— > BI
Riffai et al (2012)	Oman	Quantitative	Questionnaire	Descriptive Statistical Analysis	Online banking	UTAUT	PE EE SI TR AW OQ PP WD	(+) (+) (.) (+) (+) (+) (+) (+)	— > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI
Santouridisa and Kyritsi (2014)	Greek	Quantitative	Questionnaire	Multiple Linear Regression Analysis	Internet banking	TAM	PEOU PU PC S.ATMS DPI Income Age Gender Education WI PEE SBB	(+) (+) (+) (+) (+) (+) (.) (.) (.) (.) (.) (.)	— > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI
Rawashdeh (2015)	Jordan	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	TAM	PEOU PEOU PU PEOU PWP PU PWP ATB	(+) (+) (+) (.) (+) (+) (+) (+)	— > PU — > PWP — > ATB — > ATB — > ATB — > BI — > BI — > BI

							PEOU	(.)	— > BI
Bellahcene and Khedim (2016)	Algeria	Quantitative	Questionnaire	Binomial Logistic Regression Analysis	E-banking	TPE	Gender Education Age Profession Income PS FC QI RA KEB LLC	(.) (.) (+) (+) (+) (+) (.) (.) (.) (.) (.)	— > AIB — > AIB — > AIB — > AIB — > AIB — > AIB — > AIB — > AIB — > AIB — > AIB — > AIB
Chaouali et al, (2016)	Tunisia	Quantitative	Questionnaire	Partial Least Squares Structural Equation Modeling	Internet banking	UTAUT	PE EE TRIB TRIB TRPB CCM CCM SI SI	(+) (.) (+) (+) (+) (+) (+) (.) (+)	— > BI — > BI — > PE — > EE —> TRIB —> TRIB —>TRPB —>TRPB —> TRIB
Tarhini et al (2016)	Lebanon	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	UTAUT	PE EE SI PC TTF FC BI	(+) (.) (+) (+) (+) (+) (+)	— > BI — > BI — > BI — > BI — > BI — >BU — >BU
Szopiński	Poland	Quantitative	Questionnaire	Multiple Linear	Online		POBP	(.)	— >UOB

(2016)				Regression Analysis	banking		TR UI Age Education Income	(+) (+) (+) (+) (+)	— >UOB — >UOB — >UOB — >UOB — >UOB
Munoz-Leiva et al (2017)	Spanish	Quantitative	Questionnaire	Structural Equation Modeling	Mobile banking	DOI TAM	PEOU PEOU PU PU ATB SI SI SI TR TR TR PR	(+) (+) (+) (.) (+) (+) (+) (+) (+) (+) (+) (.)	— >ATB — >PU — >ATB — >BI — >BI —>PEOU — >PU — >ATB — >PR —>PEOU — >ATB — >BI
Alalwan et al (2017)	Jordan	Quantitative	Questionnaire	Structural Equation Modeling	Mobile banking	UTAUT2	TR EE SI PV HM TR PE EE FC BI	(+) (+) (.) (+) (+) (+) (+) (+) (+) (+)	— >PE — >PE — >BI — >BI — >BI — >BI — >BI — >BI — >A — >A
Mwiya et al (2017)	Zambia	Quantitative	Questionnaire	Multiple Linear Regression	E-banking	TAM	PEOU PU	(+) (+)	— >ATB — >ATB

				Analysis			TR	(.)	— >ATB
Makanyeza (2017)	Zimbabwe	Quantitative	Questionnaire	Structural Equation Modeling	Mobile banking	TAM UTAUT	PU PEOU SE SI FC RA AW PCM PR PEOU SE BI	(+) (.) (+) (+) (.) (+) (.) (+) (+) (+) (+) (+)	— >BI — >BI — >BI — >BI — >BI — >BI — >BI — >BI — >PU —>PEOU — >USE
Salimon et al (2017)	Nigeria	Quantitative	Questionnaire	Partial Least Squares Structural Equation Modeling	E-banking	TAM	PU PU PEOU PEOU PS PS HM	(+) (+) (.) (+) (+) (+) (+)	— >A — >HM — >A — >HM — >A — >HM — >A
Roy et al (2017)	India	Quantitative	Questionnaire	Partial Least Squares Structural Equation Modeling	Internet banking	TAM	PU PEOU PEOU PU ATB ER ER IR IR	(+) (+) (+) (+) (+) (+) (.) (.) (+)	— >ATB — >ATB — >PU — >BI — >BI — >ATB — >PU — >ATB —>PEOU

Marakarkandy et al (2017)	India	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	TAM	IUE BAI SE IUE PEOU BAI PR BAI GS ATB PU PEOU TR IUE PU SE BI PR	(+) (+) (+) (+) (+) (+) (+) (+) (.) (+) (.) (.) (.) (.) (+) (.) (+) (.)	— >SE — >SE —>PEOU —>PEOU — >PU — >PU — >TR — >TR — >TR — >BI — >ATB — >ATB — >ATB — >ATB — >BI — >BI — >AU — >AU
Chawla and Joshi (2018)	India	Quantitative	Questionnaire	Multiple Linear Regression Analysis	Mobile banking	TAM UTAUT	PEOU PCN PEF PL TR	(+) (+) (+) (+) (+)	— >ATB — >ATB — >ATB — >ATB — >ATB
Alalwan et al (2018)	Jordan	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	UTAUT2	PE PE EE EE SI HM	(+) (+) (+) (+) (.) (+)	— >BI — >PV — >BI — >PE — >BI — >BI

							HM HM PV FC HT PR BI	(+) (+) (+) (+) (+) (+) (+)	— >PE — >PV — >BI — >A — >A — >BI — >A
Yaseen and El Qirem, (2018)	Jordan	Quantitative	Questionnaire	Multiple Linear Regression Analysis	E-banking	UTAUT2	SI EE PE HM PESQ BI	(+) (+) (.) (.) (+) (+)	— >BI — >BI — >BI — >BI — >BI — >AU
Patel and Patel (2018)	Gujarat	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	TAM	PU PEOU PS SI	(+) (+) (+) (+)	— >BI — >BI — >BI — >BI
Namahoot and Laohavichien (2018)	Thailand	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking		TR PR PSQ PSQ	(+) (+) (+) (+)	— >BI — >BI — >PR — >TR
Afshan et al (2018)	Pakistan	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	TAM	PU PEOU FR PRR TIR SR IT PTT	(+) (+) (.) (+) (+) (.) (+) (+)	— >BI — >BI — >BI — >BI — >BI — >BI — >BI — >IT

							FB SA BI	(+) (+) (+)	— >IT — >IT — >A
Rahi and Ghani (2018)	Pakistan	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	UTAUT	PE EE I I I I PCM PCM PCM PTS BI	(+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+)	— >BI — >BI — >PCM — >PE — >EE — >BI — >PE — >EE — >BI — >BI —>INTRC
Rahi et al (2019)	Pakistan	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	UTAUT	PE EE EE SI FC ASS RL CS CS CS WD WD WD	(+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+)	— >BI — >BI — >PE — >BI — >BI — >BI — >BI — >PE — >EE — >BI — >PE — >EE — >BI
Baabdullah et al (2019)	Saudi Arabia	Quantitative	Questionnaire	Structural Equation Modeling	Mobile banking	UTAUT2 D&M IS	PE EE	(+) (.)	— >USE — >USE

							SI FC HM PV HT SQ SRQ IQ USE USE SATIS	(.) (+) (+) (+) (+) (+) (+) (.) (+) (+) (+)	— >USE — >USE — >USE — >USE — >USE — >USE — >USE — >USE —>SATIS —>Loyalty —>Loyalty
Merhi et al (2019)	Lebanon and England	Quantitative	Questionnaire	Structural Equation Modeling	Mobile banking	UTAUT2	PE PE EE EE SI HM HT TR PPR PS PV PV	(+) (.) (+) (.) (.) (.) (+) (+) (+) (+) (+) (.)	— > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI
Ahmad et al (2019)	Pakistan	Quantitative	Questionnaire	Structural Equation Modeling	E-banking	TAM	ESQ ESQ PU ESQ PEOU ATB	(+) (+) (+) (+) (+) (+)	— >ATB — >PU — > ATB — >PEOU — > ATB — >BI

							PU BI	(+) (+)	— >BI — >AU
Anouze and Alamro (2019)	Jordan	Quantitative	Questionnaire	Structural Equation Modeling	E-banking	TAM	PU PEOU PS ATB AQIC RT SE POP AW BI	(+) (+) (+) (+) (.) (.) (+) (+) (+) (+)	— > ATB — > ATB — > ATB — >BI — >BI — >BI — >BI — >BI — >BI — >AU
Chauhan et al (2019)	India	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	TAM	PU PU PEOU ATB PR II II DSI DSI II DSI	(+) (+) (+) (+) (+) (+) (.) (+) (+) (+) (+)	— > ATB — >BI — > ATB — >BI — >BI — >BI — >PR — >BI — >PR — >PEOU — >PEOU
Sharma et al (2020)	Fiji	Quantitative	Questionnaire	Structural Equation Modeling	Internet banking	UTAUT	PE EE SI FC PR BI	(+) (+) (+) (+) (+) (+)	— >BI — >BI — >BI — >BI — >BI — >BU

							BU	(+)	— > SATIS
Kaur and Arora (2020)	India	Quantitative	Questionnaire	Structural Equation Modeling	Online banking	UTAUT2	PR PE EE PR EE PR SI FC PR PR HM PR PV PR TR	(+) (+) (.) (+) (+) (+) (+) (.) (+) (+) (+) (+) (+) (+) (+)	— >BI — >BI — >BI — >PE — >BI — >EE — >BI — >BI — >SI — >FC — >BI — >HM — >BI — >PV — >BI
Teka (2020)	Ethiopia	Quantitative	Questionnaire	Structural Equation Modeling	E-banking	TAM TPB	PEOU PEOU PU PU ATB AW AQIC PBC PBC SN PR PR BI	(+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+)	— >PU — >ATB — >ATB — >BI — >BI — >AU — >AU — >BI — >AU — >BI — >BI — >AU — >AU

Krishna Murthy and Varalakshmi (2021)	Oman	Quantitative	Questionnaire	Partial Least Square Structural Equation Modeling	Online banking		TR PR PPR PS	(+) (+) (.) (.)	— >A — >A — >A — >A
Khan et al (2021)	Pakistan Turkey	Quantitative	Questionnaire	Partial Least Squares Structural Equation Modeling	Online banking	UTAUT2	PE EE SI FC HM PV HT PC FC HT BI	(+) (.) (+) (.) (+) (+) (+) (+) (+) (+) (+)	— > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BI — > BU — > BU — > BU
Firmansyah et al. (2022)	Indonesia	Quantitative	Questionnaire	Structural Equation Modeling	Mobile Banking	TAM	SE PU PEOU SE PC NP ATB	(+) (.) (.) (.) (.) (.) (+)	— > PEOU — >ATB — >ATB — >ATB — >ATB — >ATB — > A
Khan (2022)	Pakistan China	Quantitative	Questionnaire	Partial Least Squares Structural Equation Modeling	Digital banking	UTAUT2	PE EE SI FC PV HM	(+) (.) (+) (.) (.) (+)	— > BI — > BI — > BI — > BI — > BI — > BI

							HT CS FC HT BI	(+) (+) (+) (+) (+)	— > BI — > BI — > BU — > BU — > BU
Notes: (+) Significant relationship, (.) Insignificant relationship									

Source: made by the student

A: Adoption	INTRC: Intention to recommend	PV: Price Value
AIB; Adoption Of Internet Banking	IR: Internal Risk	PWP: Perceived Web Privacy
AQIC: Availability of Internet/Network Connection	IT: Initial trust	QI: Quality Of Internet Connection
ASS: Assurance	IUE: Internet usage efficacy	RA: Relative Advantage
ATB: Attitude Toward Using	KEB: knowledge acquired of e-banking systems	RC: Resistance To Change
AW: Awareness	LLC: legal legislation of the country	RL: Reliability
BAI: Banks initiative	NP: Normative Pressure	RT: resistant to technology
BI: Behavioral Intentions	PBC: Perceived Behavioral Control	SA: Structural assurance
BU: Usage Behavior	PC: Perceived Credibility	SATIS: Satisfaction
CCM: Counter Conformity Motivation	PCM : Perceived Compatibility	SATMS: Satisfaction With ATMS
CS: Customer Support	PCN: perceived convenience	SBB: Satisfaction with bank branches
CS: Customer Service	PE: Performance Expectancy	SE: Self-Efficacy
DPI: Domain Personal Innovativeness	PEE: Prior E-shopping experience	SI: Social Influence
DSI: Domain-specific innovativeness	PEF: perceived efficiency	SN: Subjective Norms
EE: Effort Expectancy	PI: Personal Innovativeness	SQ: System Quality
ER: External Risk	PL: perceived lifestyle	SR: security risk
ESQ: e-service quality	POBP: Possession of other bank products	SRQ: Service Quality
FB: Familiarity with ban	POEU: Perceived Ease of Use	TIR: Time risk
FC: Facilitating Conditions	POP: Perceived of price	TR: Trust
FR: financial risk	PP: Perceived Playfulness	TRIB: Trust In The Internet Banking
GS: Government support	PPR: Perceived privacy	TRPB: Trust In The Physical Bank
HM: Hedonic Motivation	PR: Perceived Risk	TTF: Task-Technology Fit
HT: Habit	PRR: Privacy risk	UI: Use of The Internet
I: Government Support	PS: Perceived Security	UOB: Use of Online Banking
I: Innovativeness	PSQ: Perceived services quality	WD: Web-Design
IBA: Intention to adopt internet banking	PTS: Perceived technology security	WI: Web-usage intensity
II: Innate innovativeness	PU: Perceived Usefulness	

Table 7 Distribution of studies by journal and year

Journal	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
American Journal of Industrial and Business Management											1						1
Cogent Economics & Finance														1			1
Economie & Société										1							1
Financial Inclusion in Emerging Markets															1		1
Global Business Review												1					1
Information Development														1			1
Information Technology & People										1							1
International Journal of Bank Marketing				1					1		2	3	2				9
International Journal of Information Management	1					1					1		1	1			5
Journal of Asia Business Studies														1			1
Journal of Business Information Systems												1					1
Journal of business research										1							1
Journal of Enterprise											1						1

Information Management																
Journal of Internet Commerce														1		1
Journal of Retailing and Consumer Services										1	1					2
Journal of Strategic Marketing											1					1
Mediterranean Journal of Social Sciences						1										1
Procedia Computer Science															1	1
Procedia Economics and Finance								1								1
Spanish Journal of Marketing											1					1
Technology in Society													2			3
Technovation			1													1
World Journal of Science, Technology and Sustainable Development												1				1
Total																38

Source: made by the student

The assessment of the 38 studies considered for the review brings together the various types of electronic banking, internet banking, online banking, e-banking, mobile banking, and digital banking. Most of these studies focused on internet banking. The majority of the studies have used the TAM, UTAUT, and UTAUT2. In addition, all of the studies used a quantitative research design and questionnaire as their data collection instrument, and most of the studies used structural equation modeling to analyze the data.

Despite these studies providing a further understanding of the main factors predicting customer adoption and usage of e-banking, there are still other important aspects that have to be explained. E-banking is considered a pioneering technology, and therefore, as stated in the information technology literature (Walsh, 2010; Von Stetten et al., 2011), individual IT culture could play an important role in motivating customers to adopt new technology. However, no empirical studies have examined their effects on e-banking adoption. Nevertheless, some recent research has investigated the effect of individual IT culture on different aspects of digitalization and information systems management.

4. Summary

This chapter highlights the reality of e-banking services in Algeria and provides an overall review of academic literature on the topic of the adoption of e-banking services among consumers in the world. The chapter began with the evolution, the definition and types of e-banking and the trend of e-banking services in Algeria and finished with a discussion of previous literature that identifies the factors affecting e-banking adoption and use. First, it has been shown that the definition of e-banking differs between studies since e-banking refers to a variety of services and types that allow customers to request information and conduct most retail banking transactions. In this study, e-banking is defined as the provision of banking products and services through electronic channels, including automatic teller machines, the internet, and telecommunication. E-banking indicates various types of services through which customers can request information or execute transactions via telephone, computer, digital television, or mobile phone depending on the customer's needs and the user device. Concerning e-banking in Algeria, the government has introduced many reforms since the early 1990s to promote e-banking in the country. As the Algerian

government created the Company of Automation of Interbank Transactions and Monetics (SATIM) and the Economic Interest Group (GIE) to establish a legal framework and develop the electronic platform and services, it introduced the systems of Instant Gross Settlement System and Electronic Payment Clearing System. To keep up with these reforms, several banks have tried to diversify their services by offering "electronic banking" services (e-banking). Despite these efforts by the Algerian government, the adoption of e-banking in Algeria is in its infancy stage. Thus, it is important to understand the factors that affect Algerian customers' adoption and use of e-banking services. Second, the review of prior research on e-banking adoption has shown that scant attention has been given to the adoption and use of e-banking research in Algeria. There are a limited number of studies about e-banking adoption in the Algeria context. The results of these studies will contribute to the overall understanding of the factors related to the adoption of e-banking in Algeria. However, despite the importance of facilitating conditions, social influence, and IT culture as key predictors for the adoption of e-banking, these factors have not received any attention in previous studies of e-banking in Algeria.

CHAPTER FOUR:
The Empirical Study

CHAPTER FOUR: The Empirical Study

1. Introduction

Having explained the theoretical background of this research and reviewed the previous studies on e-banking adoption and individual IT culture. In this chapter, an empirical study was conducted on a sample of Algerian bank customers to examine the effect of individual IT culture on e-banking adoption, and investigate the impact of IT cultural archetypes on perceived ease of use and perceived usefulness of e-banking adoption.

This chapter starts by discussing the conceptual framework and formulating research hypotheses based on the extensive discussion of the technology acceptance models, the studies utilizing these models regarding e-banking, and the individual information technology culture that was discussed in the previous chapters. This is followed by a section on the methodology of research. Next, the data analysis and the findings of the research are presented. Finally, an additional analysis is presented to identify the IT culture archetypes and explore their impact on perceived ease of use and perceived usefulness of e-banking adoption.

2. Conceptual model

This section provides an outline of the conceptual model used. First, a proposed research model was constructed from the literature related to technology adoption. Second, the development of the hypotheses was outlined and described. Finally, control variables are discussed.

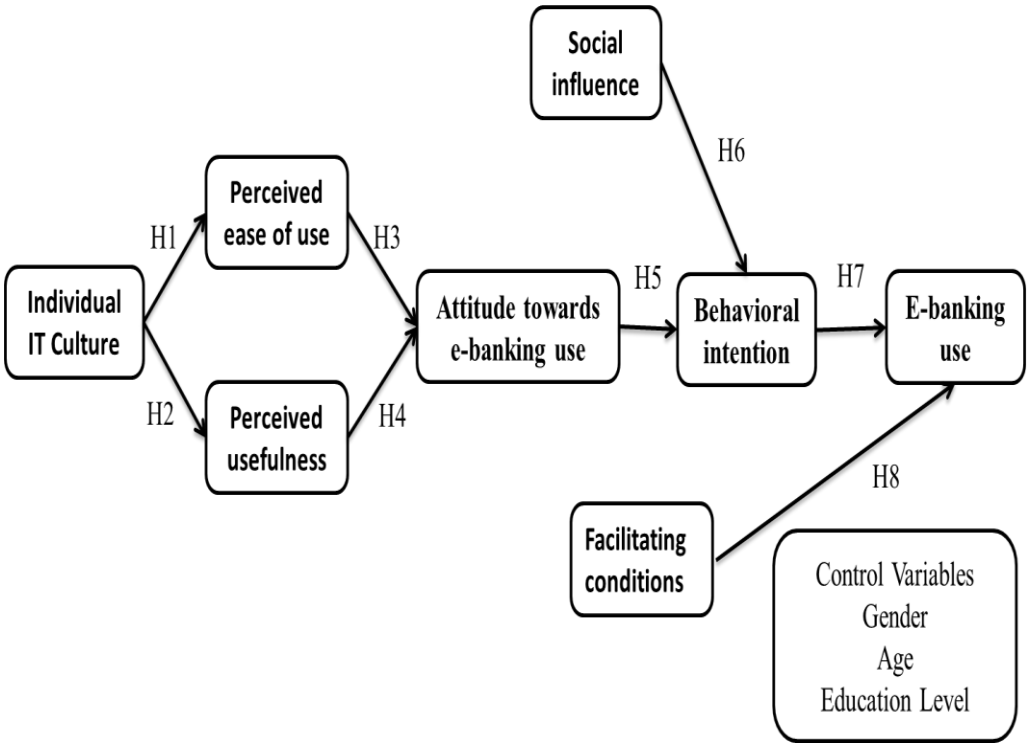
2-1- Proposed Conceptual Model

To estimate the effect of individual IT culture on e-banking adoption, a conceptual model (Figure 17) was developed based on the technology acceptance model, the unified theory of acceptance and use of technology, and the spinning top model.

Chapter two has presented the models frequently used in predicting behaviors toward new technology adoption. Although the TRA and TPB are among the most used models for explaining technology acceptance, these models are criticized for their relatively low explanatory power in terms of behavioral intentions (Al-Qeisi,

2009). Therefore, this research utilizes the TAM since, among the information systems adoption models reported in the literature, the TAM is the most applied model in this context (Chandio et al., 2017; Santouridis and Kyritsi, 2014) and is the most powerful model for explaining user acceptance (Venkatesh and Davis, 2000; Yousafzai et al., 2010). Nevertheless, the TAM omits many crucial theoretical constructs, and it does not reflect the variety of user constraints (Olushola & Abiola, 2017). Then, and in addition to the TAM, we based our model on UTAUT. In the UTAUT, effort and performance expectancy were used to incorporate the constructs we integrate into our framework from the TAM, namely, the perceived usefulness and ease of use (Marchewka & Kostiwa, 2007). Consequently, the current research model adopts two independent variables from the UTAUT model: social influence and facilitating conditions. On the other hand, this model will be enriched by incorporating the Individual IT Culture variable into the base model. Finally, based on the literature review on information systems (Al-Somali et al., 2009; shi et al, 2008; Xue et al., 2011), this study selected gender, age, and education level as the control variables that affect e-banking adoption.

Figure 17: Conceptual model



2-2- Hypotheses development

As shown in Figure 17 above, in the proposed e-banking use model, eight hypotheses were suggested to respond to the previously stated study objectives.

Individual IT Culture

In this work, individual IT culture was determined by IT needs, and IT motivation (Walsh, 2009). These dimensions consist of the need for self-accomplishment, affiliation needs, the need for power, and primary needs, intrinsic and extrinsic motivation.

Walsh (2010) proposes that individual IT culture is an antecedent to perceived ease of use and perceived usefulness. In the same line of idea, Von Stetten et al. (2011) propose that an individual who is already completely familiar with information technology, in general, will perceive an information system to be useful and easy to use as well. Therefore, the following hypotheses are suggested:

H1: Individual IT Culture has a positive impact on the perceived ease of use of e-banking.

H2: Individual IT Culture has a positive impact on the perceived usefulness of e-banking.

Perceived ease of use

Perceived ease of use refers to the degree to which an individual believes the target technology is free of effort (Davis et al, 1989).

Perceived usefulness

Perceived usefulness is the degree to which an individual expects that using new technology will increase his or her job performance (Davis et al, 1989)**.**

Previous studies on e-banking adoption have shown that perceived ease of use and perceived usefulness have a strong influence on users' attitude toward e-banking adoption (Anouze and Alamro, 2020; Kaur and Malik, 2019; Marakarkandy et al., 2017; Roy et al., 2017). In light of these studies, the third and fourth hypotheses can be formulated as follows:

H3: Perceived ease of use positively affects attitude toward e-banking use.

H4: Perceived usefulness positively affects attitude toward e-banking use.

Attitude toward e-banking use

An attitude is the degree to which an individual has a favorable or unfavorable evaluation of the behavior in question (Ajzen, 1991). Concerning e-banking, many empirical studies have shown that a person whose attitudes toward e-banking services are positive will have higher acceptance of these services (Anouze and Alamro, 2020; Kaur and Malik, 2019; Marakarkandy et al., 2017; Roy et al 2017). Therefore, the following hypothesis is suggested:

H5: Attitude toward e-banking positively influences the intention to use and adopt e-banking.

Social influence

Social influence is defined as how strongly a person perceives that others believe that he or she should use the new technology (Venkatesh et al., 2003). The considerable role of social influence in determining the intentions of e-banking use has been broadly highlighted in previous studies (Tarhini et al., 2016; Rahi et al., 2019; Sharma et al., 2020). Accordingly, we assume the following hypothesis:

H6. Social influence positively influences the intention to use and adopt e-banking.

Behavioral intention

Behavioral intention is a measure of an individual's willingness to use information technology (Davis et al. 1989). Regarding e-banking, researchers have found that persons with higher intentions to use e-banking are more likely to adopt and use e-banking (Afshan et al., 2018; Alalwan et al., 2018; Marakarkandy et al., 2017). Consequently, this study proposes the following hypothesis:

H7. Behavioral intention to use e-banking positively influences Algerian customers' use of e-banking.

Facilitating conditions

Facilitating conditions are defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003, p.453). The effect of facilitating conditions on e-banking use has been empirically proven by several studies (Tarhini et al., 2016; Alalwan et al., 2017; Baabdullah et al., 2019; Rahi et al., 2019). Therefore, the following hypothesis is formulated:

H8. Facilitating conditions positively influence Algerian customers' e-banking use.

Control Variables

In this study, the control variables (gender, age, and education level) were introduced to measure the relationships between variables. Therefore, this implied that the impact of how well the independent variables predicted consumer adoption of e-banking was to be measured, with or without the control variables. Previous research (Rogers et al., 1997; Venkatesh & Morris, 2000) suggested that demographic factors play a significant role in technology adoption. However, some researchers have proposed that demographic factors do not directly influence consumers' behavioral intentions or actual usage but are only significant as controlling factors via perceived ease of use and perceived usefulness (Ameme, 2015; Kim et al., 2009). Demographic factors are discussed next.

Gender

Concerning gender as a demographic variable that influences consumers' acceptance and adoption of new technology, different studies have yielded different findings. Venkatesh et al. (2002) and Morris & Venkatesh (2000) indicated that decision-making processes by males and females are dissimilar with respect to acceptance research. Some researchers found that gender was insignificant in terms of the decisions made on technology adoption (shi et al., 2008; Al-Somali et al., 2009; Xue et al., 2011). However, previous studies (Lee et al., 2010) have suggested that males have an advantage over females where technology adoption is concerned and therefore indicate that females generally exhibit negative attitudes toward IT

adoption. In the context of e-banking, some studies have found that men are more likely to use both e-banking and mobile banking than women (Gerrard et al., 2006; Laukkanen 2016; Kalinić et al., 2019).

Age

Age has been extensively studied in behavioral studies, with many researchers suggesting that age is a significant factor in technology adoption, exhibiting both moderating and direct effects on technology adoption (Rose & Fogarty, 2010; Wang et al, 2009). Studies on information systems adoption demonstrate that younger users behave differently than their counterparts. Older users tend to be relatively laid back in terms of using technology for conducting transactions, as they rely more on face-to-face transactions; they need to maintain greater control over their situation and perceive a higher level of use complexity and difficulty (Chawla & Joshi, 2018). Gan et al. (2006) indicate that senior consumers, being more risk aversive, prefer a personal banking relationship. Wan et al. (2005) found that internet banking adoption was highest among middle adulthood customers and lower for younger and older customers. In a more recent study, Zhao et al. (2018) found that the age of the user has a significant moderating impact on perceived ease of use and that perceived ease of use is a more important factor for middle-aged and older users to use information systems. Furthermore, Tarhini et al. (2014) found that age moderates the effect of perceived usefulness and that perceived usefulness has a strong effect on younger users compared to older users. Therefore, many researchers (Ghalandari, 2012; Tarhini et al. 2016) have cited age as an important determinant of technology acceptance.

Education Level

Education level means the level of formal education that an individual possesses, which is inclusive of knowledge and skills gained during the years. Previous studies (Tarhini et al., 2016; Binyamin et al., 2019) have observed that education level influences the acceptance of new technologies. These studies revealed that education levels do not directly influence behavioral intentions but rather influence perceived ease of use and perceived usefulness. Additionally, increased

educational levels lead to increased e-banking adoption (Gan et al., 2006; Sánchez-Torres et al., 2017). These findings implied that less-educated consumers may not be too eager to use sophisticated e-banking, such as account opening, as they may believe that these are complex and not useful.

3. Methodology

This section includes the research approach, research design and instrument, and pre-test. Finally, the statistical tools and data analysis approach undertaken in this study and sample characteristics are presented.

3-1- Research approach

Various dichotomies and paradigms have underlined research approaches used in the study of information systems and social science, e.g., positivism versus interpretivism, quantitative versus qualitative, induction versus deduction, and exploratory versus confirmatory (Fitzgerald & Howcroft, 1998) (Table 8); each is discussed in turn. The aim of research in these approaches is to better understand the actions and behaviors of individuals, groups, and institutions and to examine their influence on each other. Several researchers have referred to the positivistic paradigm as quantitative and the interpretivism paradigm as qualitative (Hussey and Hussey, 1997).

This study is located within the positivistic paradigm (quantitative) rather than the interpretivism paradigm. This research seeks to understand the present situation regarding the adoption and usage of e-banking services in Algeria. In this study, hypotheses were formulated by applying logical reasoning to the findings of previous studies. These hypotheses will be tested with data collected from a survey using instruments applied in prior studies.

Table 8 Summary of methodological dichotomies

Positivism	Positivism assumes that the researcher and reality are separate, and that objective reality exists beyond the human mind. With positivism, the emphasis is on developing a hypothesis or a set of hypotheses based on existing theory and then testing them to gain evidence to support the theoretical lens adopted. Quantitative research approaches, such as employing a survey methodology to acquire data from a specific population, are almost exclusively connected with the positivist perspective.
Interpretivism	Interpretivism assumes that the researcher and reality are inseparable and that knowledge of the world is intentionally built through lived experiences or the social construction of the world. Interpretive researchers tend to use qualitative research methods such as narrative research; case study; grounded theory; ethnographic research; and phenomenology.
Quantitative	The quantitative paradigm is founded on positivism, which advocates the presence of only one truth from an ontological standpoint (an objective reality), that is independent of human perceptions. Quantitative research is based on the assumption that all phenomena may be reduced to empirical indicators that indicate the truth. The research techniques employed by quantitative research include mathematical & statistical techniques to identify facts and causal relationships. Normally, Samples can be larger & more representative.
Qualitative	The qualitative paradigm is founded on interpretivism, which proposes the presence of various realities (truths) based on a person's interpretation of reality. Qualitative research emphasizes meanings and processes and uses techniques that include in-depth interviews, focus groups, and participant observation.
Induction	Inductive reasoning is a process of reasoning in which the premises

	of an argument are believed to support the conclusion but do not ensure it, and it begins with specific instances that are used to arrive at overall generalizations that can be expected on the balance of probability. This approach plays a critical role in the theory and hypothesis conception.
Deduction	Deductive reasoning is concerned with testing or confirming hypotheses, and uses general findings to ascribe properties to specific instances. An argument is valid if the conclusions cannot be false if the premises are true.
Exploratory	In exploratory research, the researcher does not seek to "confirm" any predetermined associations; rather, the method and data are used to describe the nature of the interactions that exist between the model's variables. Therefore, it may lead to the generation of hypotheses.
Confirmatory	In confirmatory studies, researchers are seeking to test and confirm a prespecified relationship, Tend to follow positivist, quantitative modes of research.

3-2- Research design and instrument

In positivistic methodology, the researchers use several approaches to undertake data collection based on research questions and objectives. They may choose between an experiment, a longitudinal study, a cross-sectional study, a survey, or a case study (Hussey & Hussey, 1997). A survey can be an effective tool for collecting data on human attitudes and behavior.

A survey method was utilized to examine the impact of individual IT culture on e-banking adoption in Algeria. Existing literature from previous research was drawn upon to develop the survey. Table 09 tabulates all the factors that were included in this study and the literature from which they were drawn.

Considering that the official language of Algeria is Arabic, the research questionnaire was in Arabic and divided into four main sections:

Participation letter: The purpose of using the participation letter was the introduction of the questionnaire and to inform respondents about the purpose of the study and how the collected data were to be used, as seen in the Appendix.

Demographic profile: focused on collecting the respondents' demographic information.

E-Banking use: This section is used to solicit each respondent's e-banking usage information.

E-banking adoption factors: This section focuses on all variables, including external variables. For all items in this section, a five-point Likert scale was used to collect data.

Table 9 Measurement scales

	Factor	Number of questions	Literature sources
	E-banking use	3 items	Venkatesh & Bala (2008)
	Behavioral Intention	3 items	Venkatesh & Bala (2008)
	Attitude Toward E-Banking Use	3 items	Venkatesh et al (2003) Davis et al (1989)
	Perceived Ease Of Use	5 items	Venkatesh & Bala (2008) Davis et al (1989)
	Perceived Usefulness	3 items	Venkatesh et al (2003)
	Social Influence	3 items	Venkatesh et al (2003)
	Facilitating Conditions	3 items	Venkatesh et al (2003)
Individual IT Culture	Self-accomplishment needs satisfied through the usage of IT	3 items	Von Steten et al.(2011) Walsh(2009)
	Extrinsic motivation to use IT through external regulation	3 items	
	Power needs satisfied through the usage of IT	3 items	
	Affiliation needs satisfied through the usage of IT	3 items	
	Primary needs satisfied through the usage of IT	2 items	
	Intrinsic motivation to know through IT	3 items	
	Extrinsic motivation to use IT through identified regulation	4 items	

3-3- Pre-test

Prior to the primary survey, it was considered fundamental to validate the survey instrument through pre-testing to determine if there were any obscure questions, problems in understanding the questions, or proposals, if any, for revision of the questionnaire (Remenyi et al.,1998). In other words, to ensure that respondents understand and answer the questionnaire in the way in which our research intended. Three lecturers specializing in information systems adoption and two Algerian banks' customers using e-banking performed the pre-test. Both the structure of the survey (e.g., order of questions) and some unclear wordings were adjusted.

3-4- Statistical Tools and Data Analysis Approaches

Survey data were entered into the statistical package SPSS for analysis frequencies and percentage distributions of respondents' demographic information in tables to check that these responses were representative of the larger population of Algeria.

Data were analyzed using structural equation modeling (SEM) with the PLS component-based technique. Partial least squares were chosen (with smartpls 3 software), as it is more appropriate when the goal is to explain variance (Gefen et al., 2011) and when the dataset is relatively small (Hair et al., 2019). To assess the measurement model, we used confirmatory factor analysis (CFA), Cronbach's alpha coefficient, composite reliability (CR), and the average variance extracted (AVE) to test the reliability and convergent validity. In addition, we used the Cross-loadings, Fornell and Larcker Criterion, and the heterotrait-monotrait ratio (HTMT) to evaluate the discriminant validity.

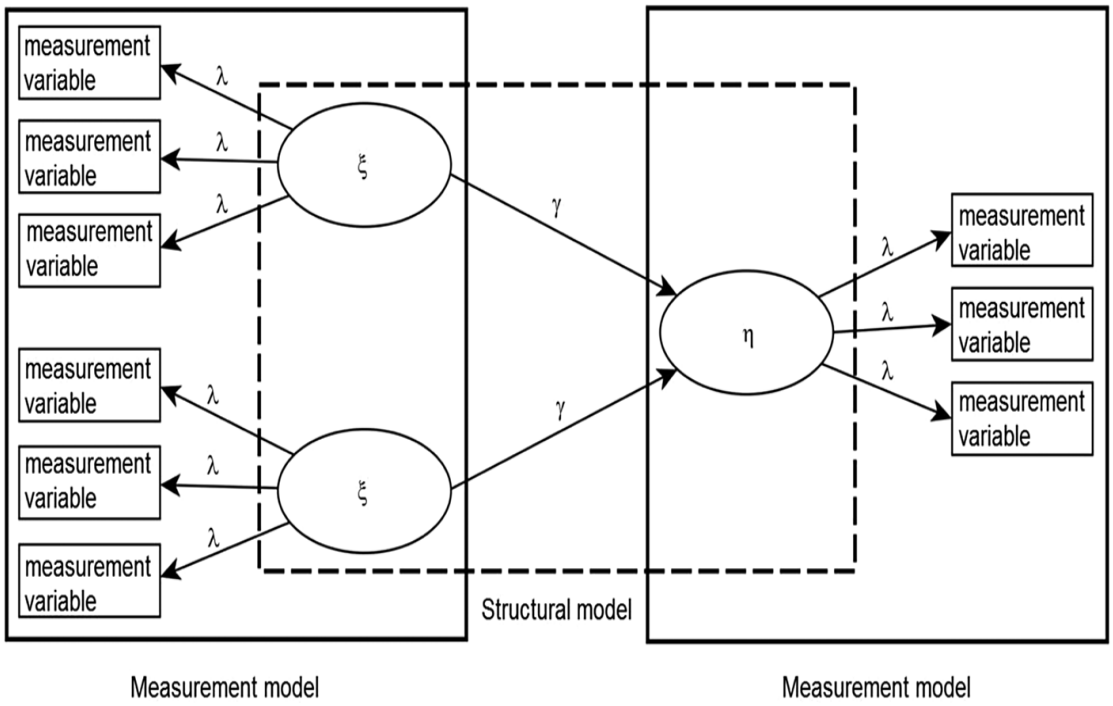
In an additional analysis, to identify IT culture archetypes, we used cluster analysis. Multiple linear regression analysis with dummy variables was conducted to explore the influence of these archetypes on perceived usefulness and perceived ease of use and to test the proposed hypotheses. The following sections review the specifics of each analysis method that was used in this study.

3-4-1- Structural equation modeling

Structural equation modeling (SEM) is a growing family of statistical methods for modeling the relations between variables and a comprehensive statistical approach to testing hypotheses about relations among variables (Hoyle, 1995). Two kinds of variables are used in SEM, including endogenous variables, which are also called dependent variables, and exogenous variables, which are also called independent variables. SEM integrates two types of analyses, including multiple regression and factor analysis. When factor analysis is used, large numbers of observed variables are reduced to reflect a smaller number of latent variables (Pett et al., 2003).

A structural equation model consists of the measurement models, which link the observed variables to the latent variables (the constructs), and the structural model, which links the latent variables to each other using systems of simultaneous equations (Jais, 2007), as shown in Figure 18.

Figure 18: Measurement model and structural model (Nitzl, 2010)



The Measurement Model assessed the reliability and validity of the constructs (Wong, 2019). Cronbach's alpha, along with the average variance extracted and composite reliability, was used to evaluate convergent validity. Cronbach's alphas should exceed the recommended value of 0.7, exceeding the value of 0.7 for

composite reliability (Hair et al., 2019) and the value of 0.5 for the average variance extracted (AVE) (Fornell and Larcker, 1981; Gefen et al., 2011). In addition, the Measurement Model assessed the discriminant validity (Hair et al., 2016) and Heterotrait-Monotrait Ratio (HTMT) analysis. Discriminant validity defines and measures the degree to which items in a specific construct are different from other constructs. This measure is defined by establishing correlations of the constructs by comparing the square root of the AVE of a particular construct, resulting in diagonal loadings being greater than their vertical counterparts (Bervell & Umar, 2017). The heterotrait-monotrait ratio (HTMT) measures the average correlation relative to the average correlation of the same construct being measured (Henseler et al., 2015). The expectation is that values less than 0.85, in strict criterion, or 0.9, in an acceptable parameter of the HTMT, established that the standard has been met (Bervell & Umar, 2017).

The structural model is used to determine the power and direction of path coefficient values based on R2, beta coefficients, and their corresponding t-statistic values to determine significance (Hair et al., 2016). T-statistic value analysis and T values were used to identify the significance of the relations. The critical T values should be lower than the empirical T values, with values of 2.57 and 1.96 used to address significance levels of 0.01 and 0.05, respectively (Hair et al., 2016).

Within the SEM framework, there are two alternatives to perform the analysis: covariance-based SEM (CB-SEM) and partial least-squares SEM (PLS-SEM) (Leguina, 2015). CB-SEM includes a maximum likelihood procedure to minimize the difference between the observed and estimated covariance matrices, as opposed to maximizing explained variance. On the other hand, PLS-SEM focuses on maximizing the explained variance of the endogenous constructs. As such, the two techniques have a different emphasis, with CB-SEM being more applicable to confirmatory factor analysis and PLS-SEM being more suitable for exploratory work in finding and evaluating causal relationships (Hair et al., 2011).

Researchers should achieve this supposition when conducting CB-SEM. The first is that the sample size of the data should be large, i.e., more than 200. Hair et al. (2010) offer the minimum sample size depending on the model complexity and basic measurement model characteristics. They recommend PLS is a powerful method when a small sample size could be carried out compared to CB-SEM. Each construct

should have more than three items (indicators) to avoid the identification problem. In the case where three indicators left in the model cannot be computed since the model is "just identified", all values obtained from factor loadings are meaningless. Second, only the reliable and valid variance is useful for testing causal (direct) relationships. This means that the structural model cannot be conducted when prior reliability and validity cannot be achieved. Thus, partial least square SEM (PLS-SEM) has been established to solve these problems. This method has several advantages that include the normality of the data distribution not assumed. This means that nonnormal data can be used in structural equation modeling since its application is performed by the nonparametric method. In addition, indicators (items) with fewer than three for each construct could be carried out since the identification issues have been overcome. In addition, this model can include a larger number of indicator variables even higher than 50 items. Instead, CB-SEM accepts several indicator variables to analyze its limits (Afthanorhan, 2013).

PLS-SEM has two types of measurement models: reflective and formative measurement models. Thus, researchers distinguish between these models to evaluate them (Henseler et al., 2009). The formative measurement model was first proposed by Curtis and Jackson (1962), who challenge the characteristic of positively correlated measures as a necessary condition. The measurement model specifies the relationship between constructs and measures. In this respect, the direction of the relationship is either from the construct to the measures (reflective measurement) or from the measures to the construct (formative measurement) (Diamantopoulos et al., 2008).

3-4-2- Cluster Analysis

Cluster analysis refers to a loosely connected family of methods that generate classifications (Goldstein, 2013). Hence, it is an exploratory data analysis method for solving classification problems. Its purpose is to sort cases (people, things, events, etc.) Into groups or clusters so that the degree of association is strong between members of the same groups and weak between members of different groups (Ozbay et al., 2009).

Three methods of clustering exist: hierarchical, non-hierarchical, and overlapping (Seber, 1984). Of these methods, only hierarchical and nonhierarchical

are widely used in social science research. Hierarchical and non-hierarchical clustering are distinguished by the technique used to derive clusters from the data. However, the distinction has theoretical implications as well.

The goal of hierarchical approaches is to uncover the nested structure of clusters in multivariate data. Joining in hierarchical clustering begins by connecting the nearest individual observations in a space determined by the dimensions utilized in the analysis. Once established, these clusters are connected with additional clusters or individual observations to construct larger clusters. This technique is repeated until all observations are combined into a single cluster (Henry et al., 2005).

Hierarchical clustering requires the researcher to select a distance metric, a way of defining the link between clusters and how clusters will be linked together to form other clusters. Whereas distance is a unit of measurement for expressing the distances between instances in multivariate space, linkage refers to the point in a cluster from which distance measures will be calculated. In social sciences studies, commonly used linkages are single linkage, complete linkage, centroid linkage, and Ward's (1963) linkage. Distance is measured between observations in two clusters with the shortest distance between them in a single linkage. Complete linkage is the inverse of single linkage in that it entails determining the distance between clusters using observations with the maximum distance between them. Ward's (1963) linkage approach connects clusters based on the degree of similarity between observations in the same cluster. When clusters are linked together, Ward's linkage minimizes the within-cluster sum of squares of each cluster.

Non-hierarchical clustering is distinct from hierarchical clustering in that it does not build a nested data structure. Non-hierarchical clustering produces discrete clusters (Rahman, 2022). Non-hierarchical clustering requires the researcher to designate several clusters to extract before beginning the study. Non-hierarchical clustering offers both benefits and drawbacks. Non-hierarchical clustering techniques do not give the researcher as much freedom in selecting distance measures and discriminating between clusters as hierarchical routines do. Non-hierarchical clustering tools, on the other hand, allow researchers to choose initial cluster Centres and distance measures (Henry et al., 2005).

Non-hierarchical clustering is most commonly performed with the K-means method in statistical software such as SPSS and SYSTAT (macqueen, 1967). Initial

cluster Centres (values indicating the average of each cluster on each variable) are either entered by the researcher or selected at random by the software in this approach. Once the first Centres are determined, the software distributes cases to the cluster with the closest Centre. When cases are allocated in this manner, the cluster Centres are frequently changed, objects are reassigned to clusters and the Centres are updated again. This approach is repeated until no objects' cluster memberships change (Rahman, 2022).

3-4-3- Multiple linear regression analysis with dummy variables

Regression is a statistical tool that is used to assess the relationship between various variables to ascertain the causal effect of one variable upon another. Before beginning the regression process, a small definition of correlation is imperative because it is also used in the current study. Correlation is a measure of association between two variables. It is a standardized covariance and is defined as the covariance divided by the standard deviations of each variable (Brown, 2012). There are many various types of correlation equations, but for this study, the focus is on the most commonly used equation, the Pearson correlation coefficient, which describes the strength and direction of the link between two variables in a single number. The maximum and minimum values of the correlation coefficient are always 1 and -1, respectively. A positive coefficient indicates that the relationship is positive, while a negative coefficient means that the relationship is negative. A zero correlation shows that there is no relationship between the two variables. The strength of the relationship between the variables is reflected by how near the coefficient is to +1 or -1. (Dowdy et al., 2005).

Regression analysis is a predictive modeling technique that assesses the relationship between dependent and independent factors. There are two types of regression analysis methods, namely, simple and multiple. In simple linear regression, there is a single x and y variable (Akinbulire et al., 2010).

A multiple linear regression illustrates the relation between the dependent variable y and two or more independent variables (Brown, 2009). The general model for k variables is of the form

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \cdots + \beta_k x_{ik} + e_i$$

$$\mathbf{i = 1, 2, \ldots, n.}$$

The least-squares approach is used to estimate the regression coefficients (β0, β1..., βk) in multiple linear regression analysis. The regression coefficients provide a measure of the contribution of each independent variable to explaining the dependent variable (Schneider et al., 2010).

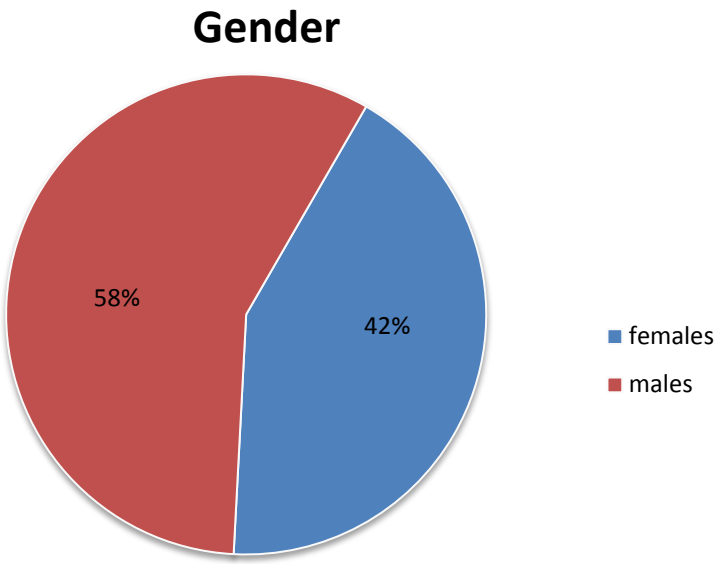
All independent variables are treated numerically in the regression analysis. However, you may wish to include an attribute or nominal scale variable in the research, such as 'Product Brand.' Dummy variables are used in this case to 'trick' the regression algorithm into accurately evaluating attribute variables. A dummy variable is an artificial variable created to represent an attribute with two or more distinct categories or levels (Skrivanek, 2009). The purpose of these variables is to provide a simple technical procedure for measuring the impact of categorical variables. The integers '0' and '1' are assigned to dummy variables to denote membership in any mutually exclusive and exhaustive category. The number of dummy variables required to represent a single attribute variable is equal to the variable's number of categories minus one (Garavaglia and Sharma, 1998).

3-5- Sample characteristics

The data for the study were collected using two main methods. First, we conducted a field survey of Algerian bank customers in Northwest Algeria. In parallel, an online questionnaire was administered through Google Forms and published in the Facebook gropes of Algerian banks' customers. This method allowed us to receive responses to the questionnaire from the clients of various banks in Algeria. Of the 400 surveys distributed in person, 260 questionnaires were completed (response rate of 65%), and a total of 100 online questionnaires were completed for a total of 360 responses.

The demographic analysis of survey respondents – presented in Table 10 and Figure 19 – shows that the number of male respondents is higher than that of female respondents, with males accounting for 58% and females accounting for 42% of responses. This is very much in line with users of e-banking in Algeria, where approximately 56% of men own an account compared to 29% of women (bali, 2022).

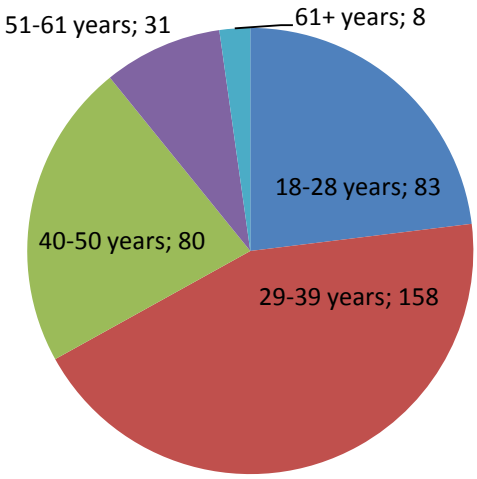
Figure 19: Sample demographic gender



Source: made by the student

Concerning age, the results (Figure 20) show that most respondents were between 29 and 39 years old (43.9%), which is the second category of the sample. On the other hand, 23.1% of the respondents were between 18 and 28 years old, and 22.2% were between 40 and 50 years old. This is very much in line with the age of the population in Algeria, where approximately 42.91% of the Algerian population is between 25 and 54 years old (indexmundi).

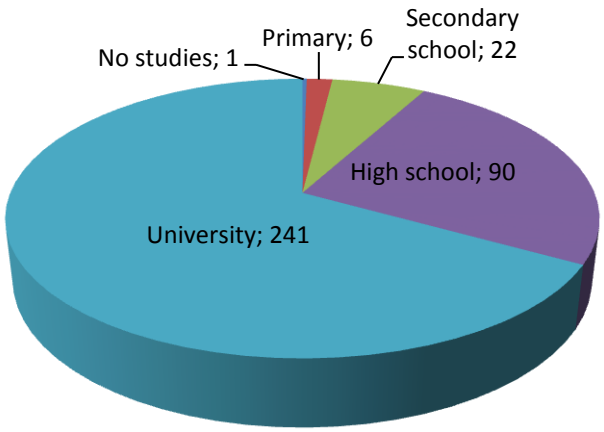
Figure 20: Sample demographic age



Source: made by the student

Education level, as seen in Table 10 and Figure 21, varied from primary school to university level, with 66.9% reporting having a university-level education, followed by 90 participants (25%) who had a high school level of education, while 6.1% had a secondary school level of education.

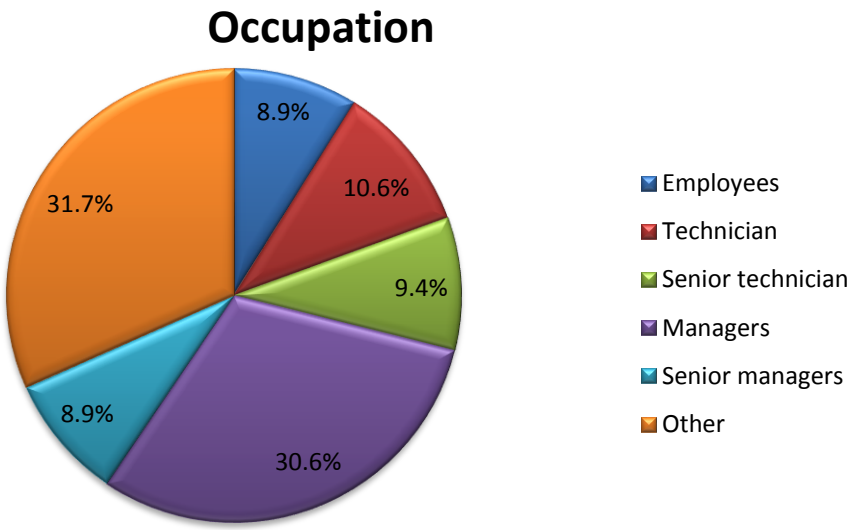
Figure 21: Sample demographic education level



Source: made by the student

Based on the type of occupation (Figure 22), 30.6% of respondents were managers, 10.6% were technicians, and 9.4% were senior technicians. Each employee and senior manager comprised 8.9%, and the remainder (31.7%) had various jobs.

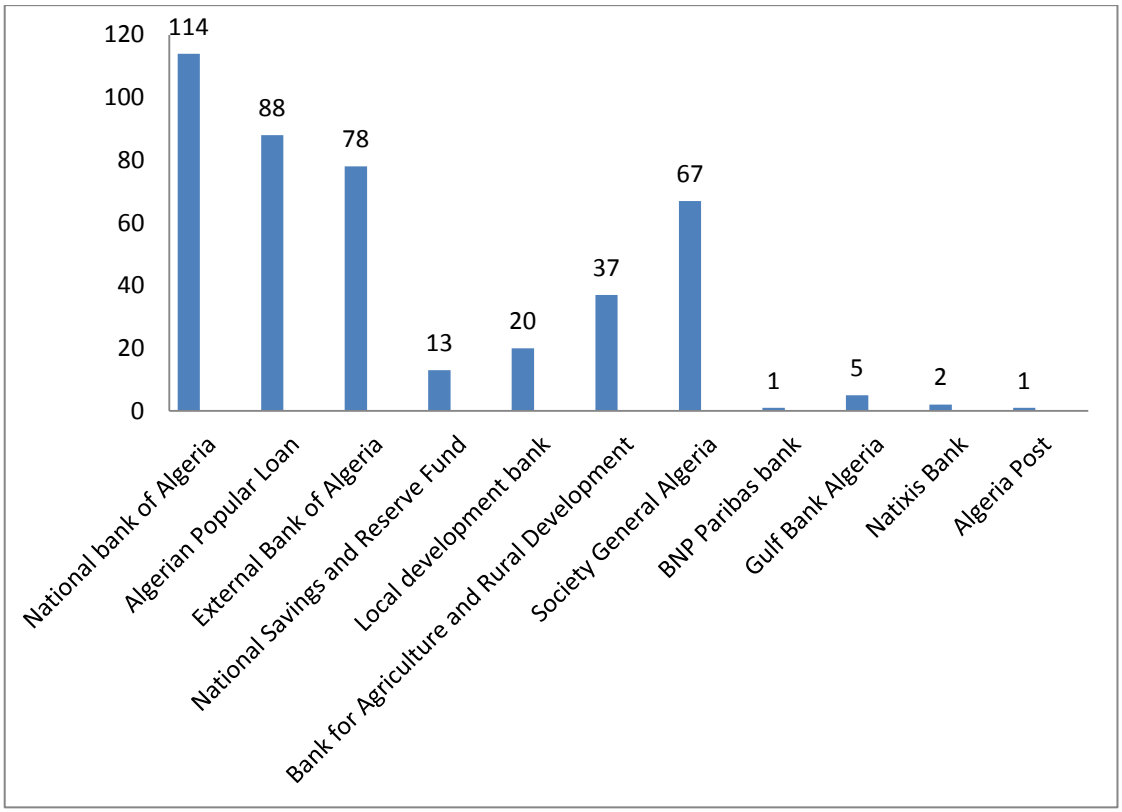
Figure 22: Sample demographic education level



Source: made by the student

Concerning bank accounts, the results (Figure 22) show that the respondents consisted of 312 clients of different Algerians banks. There were 88 clients from the National Bank of Algeria (24.4%), 78 clients from the Algerian Popular Loan (21.7%), 37 clients from the Local Development Bank (10.3%), and 48 clients from the Algeria Post (13.3%). This is very much in line with the characteristics of the Algerian banking system. Public banks control the largest share of banking activity in Algeria, as they account for about 85 % of loans and 90 % of deposits (Union of Arab Banks).

Figure 23: Sample demographics Bank accounts



Source: made by the student

Table 10 Respondent profile

Variable	Responses choice	Frequency	Percent
Gender	Male	207	57.5
	Female	153	42.5
Age	18-28 years	83	23.1
	29-39 years	158	43.9
	40-50 years	80	22.2
	51-61 years	31	8.6
	61+ years	8	2.2
Education level	No studies	1	0.3
	Primary	6	1.7
	Secondary school	22	6.1
	High school	90	25
	University	241	66.9
Occupation	Employees	32	8,9
	Technician	38	10,6
	Senior technician	34	9,4
	Managers	110	30,6
	Senior managers	32	8,9
	Other	114	31.7
Bank	National bank of Algeria	88	24.4
	Algerian Popular Loan	78	21.7
	External Bank of Algeria	13	3.6
	National Savings and Reserve Fund	20	5.6
	Local development bank	37	10.3
	Bank for Agriculture and Rural Development	67	18.6
	Society General Algeria	1	0.3
	BNP Paribas bank	5	1.4
	Gulf Bank Algeria	2	0.6
	Natixis Bank	1	0.3
	Algeria Post	48	13.3

Source: made by the student

3-6- Normality test

The normality assessment was performed by evaluating skewness and kurtosis. Data normality is ensured when the absolute value of skewness < 2 and kurtosis < 7 (Haire et al., 2010). As shown in Table 11, all the data fit the acceptable range of the skewness and kurtosis values, indicating that the data were normally distributed.

4. Data analysis and findings

This section presents the data analysis and findings of the research. It begins with the assessment and testing of the proposed research model using partial least squares structural equation modeling. In the first stage, the test of the measurement model includes an estimation of internal consistency, convergent validity, and discriminate validity. In the second stage, the structural model and the main research hypotheses were tested. Finally, a discussion of the results is presented.

4-1- Assessment of measurement models

According to Hair et al. (2017), PLS-SEM analysis should consist of two steps: the measurement model and the structural model. For the first step (measurement model), we assessed the unidimensionality and reliability of all research constructs. To do so, we performed a principal component analysis (PCA) and a confirmatory factor analysis (CFA). This analysis includes Outer Loadings, Cronbach's Alpha, average variance extracted (AVE), and composite reliability (CR). The last property to be analyzed is discriminant validity and common method bias.

4-1-1- Convergent Validity and Reliability

Outer loadings represent the absolute contribution of the indicator to the definition of its latent variable (Garson, 2016). The rule of thumb for outer loadings above 0.50 is acceptable and recommended; hence, some indicators below 0.50, that is, 1 item for ACCNEE, 1 item for POWNEE, and 1 item for PRIMNEE, have been removed (Table 11), as they lack reliability based on the rule of thumb.

Cronbach’s alpha is a traditional procedure of criterion inner reliability based on the PLS-SEM method (Hair et al., 2017). Cronbach’s α values (Table 11) ranged from 0.719 to 0.993, above the recommended.7 value (Hair et al., 2019).

Composite reliability is another measurement of inner reliability based on the PLS-SEM method. The composite reliability values range between 0.968 and 0.868 (Table 11), which are all higher than the minimum value of 0.7 outlined by Hair et al. (2019).

The average variance extracted is a measure of convergent validity. It is the degree to which a latent construct explains the variance of its indicators. The AVE

values were above the minimum of 0.5 (Fornell and Larcker, 1981; Gefen et al., 2011), from 0.664 to 0.911 (Table 11).

Table 11 Convergent Validity and Reliability of the Measurement Model

Dimension		Items	Mean	SID	Loading	*A* Cronbach	CR	AVE	Skewness	Kurtosis
E-banking use (USE)		USE1	1.80	1.29	0.950	.935	.958	.885	,136	-,897
		USE2	1.67	1.22	0.949				,228	-,742
		USE3	1.87	1.34	0.922				,032	-1,129
Behavioral intention (BI)		BI1	3.54	1.27	0.971	.951	.968	.911	-,953	-,247
		BI2	3.58	1.23	0.968				-,951	-,140
		BI3	3.43	1.28	0.923				-,718	-,605
Attitude toward E-banking use (ATB)		ATB1	3.83	1.15	0.947	.944	.964	.900	-1,082	,444
		ATB2	3.82	1.09	0.967				-,977	,340
		ATB3	3.84	1.09	0.931				-1,058	,574
Perceived ease Of use (PEOU)		PEOU1	3.42	1.16	0.801	.993	.915	.683	-,666	-,427
		PEOU2	3.56	1.09	0.822				-,725	-,267
		PEOU3	3.57	1.11	0.898				-,798	-,094
		PEOU4	3.54	1.09	0.818				-,772	-,046
		PEOU5	3.46	1.14	0.787				-,578	-,507
Perceived Usefulness (PU)		PU1	3.72	0.99	0.912	.907	.942	.843	-,727	,098
		PU2	3.69	1.01	0.920				-,701	,027
		PU3	3.68	1.03	0.923				-,850	,354
Facilitating conditions (FC)		FC1	3.07	1.29	0.894	.891	.933	.822	-,330	-1,145
		FC2	3.14	1.33	0.922				-,310	-1,184
		FC3	3.23	1.32	0.904				-,450	-1,031
Social influence(SI)		SI1	3.02	1.02	0.861	.872	.921	.795	-,164	-,874
		SI2	2.94	1.05	0.906				-,096	-,875
		SI3	2.84	1.09	0.907				-,031	-,886
IITC Constructs	Self-accomplishment needs satisfied Through the usage of IT	ACCNEE1	3.75	0.96	0.906	.901	.936	.834	-1,044	1,068
		ACCNEE2	4.03	0.89	0.921				-1,002	1,047
		ACCNEE3	3.84	0.96	0.913				-,966	,831
	Extrinsic motivation to use IT Through external regulation	MOTER1	2.60	0.99	0.732	.834	.887	.664	,488	-,531
		MOTER2	2.47	1.01	0.896				,351	-,661
		MOTER3	2.50	1.06	0.838				,475	-,611
		MOTER4	2.47	1.02	0.784				,421	-,513
	Power needs satisfied through the Usage of IT	POWNEE2	3.40	1.06	0.872	.773	.868	.687	-,657	-,291
		POWNEE3	3.64	0.96	0.868				-,702	,133
		POWNEE4	3.07	1.14	0.740				-,154	-,870
	Affiliation needs satisfied through The usage of IT	AFFNEE1	3.74	0.96	0.823	.859	.914	.781	-,982	,961
		AFFNEE2	3.94	0.85	0.914				-,953	1,274
		AFFNEE3	3.88	0.82	0.911				-,927	1,262
	Primary needs satisfied through the	PRIMNEE1	3.74	0.94	0.944	.719	.868	.768	-,836	,381
		PRIMNEE2	3.22	1.09	0.803				-,139	-,931

	Usage of IT									
	Intrinsic Motivation to know through IT	INTMOT1	3.71	0.96	0.807	.791	.878	.707	-,963	,778
		INTMOT2	3.72	0.96	0.894				-,781	,262
		INTMOT3	3.64	0.93	0.818				-,885	,627
	Extrinsic motivation to use IT Through identified regulation	MOTIR1	3.84	0.99	0.918	.930	.950	.827	-,951	,573
		MOTIR2	3.83	0.99	0.923				-,963	,679
		MOTIR3	3.78	1.01	0.896				-,875	,347
		MOTIR4	3.87	0.95	0.901				-1,034	1,007

Source: made by the student based on outputs of SPSS and Smartpls

4-1-2- Discriminant validity

Discriminant validity is defined as the extent to which a construct is truly distinct from other constructs by empirical standards (Hair et al., 2017). In this study, discriminant validity is examined through cross-loading, the Fornell and Larcker criterion, and the heterotrait-monotrait ratio (HTMT).

The cross-loading approach gives opportunities to researchers to test each indicator that has strong loadings on the same factor and with multiple factors based on PLS-SEM. (Henseler et al., 2014). An indicator's outer loading on the associated construct should be greater than any of its cross-loadings (i.e., its correlation) on other constructs (Hair et al., 2017). According to this criterion (Table 12), all constructs meet the criteria for discriminant validity.

The study then tested the Fornell and Larcer Criterion. The shared variance between one construct and the other constructs must be less than the average variance (Fornell and Larcker, 1981). This requirement was met for all constructs (Table 13).

We added a final control of the heterotrait–monotrait ratio (HTMT). As established by Hair et al. (2019). The HTMT measures the average correlations of indicators across different constructs that measure different phenomena. The measurements are relative to the average of the correlations of the indicators within the same construct (Henseler et al., 2015). The HTMT value must be well below 0.85, which was our case (Table 14). We also performed bootstrapping and assessed the upper confidence interval limit to check for HTMT inference criteria. As all values were well below 1 (Hair et al., 2019), we concluded that discriminant validity was established.

Table 12 Cross-loading

	ATB	USE	BI	FC	IITC	PEOU	PU	SI
ATB1	0,947	0,501	0,712	0,468	0,412	0,581	0,578	0,154
ATB2	0,967	0,519	0,721	0,502	0,408	0,586	0,612	0,169
ATB3	0,931	0,512	0,747	0,543	0,438	0,584	0,611	0,198
BI1	0,759	0,581	0,972	0,582	0,374	0,446	0,548	0,157
BI2	0,773	0,603	0,969	0,591	0,403	0,497	0,563	0,182
BI3	0,656	0,548	0,922	0,630	0,316	0,448	0,525	0,231
FC1	0,455	0,512	0,554	0,891	0,238	0,515	0,489	0,331
FC2	0,489	0,556	0,574	0,923	0,235	0,507	0,496	0,362
FC3	0,501	0,554	0,578	0,905	0,291	0,509	0,525	0,317
IITC	0,442	0,274	0,383	0,281	1,000	0,375	0,327	0,182
IS1	0,116	0,085	0,166	0,312	0,160	0,225	0,280	0,861
IS2	0,140	0,035	0,144	0,292	0,162	0,216	0,247	0,906
IS3	0,218	0,166	0,206	0,374	0,164	0,279	0,291	0,907
PEU1	0,490	0,335	0,366	0,455	0,297	0,800	0,412	0,238
PEU2	0,513	0,342	0,388	0,424	0,332	0,822	0,431	0,146
PEU3	0,528	0,417	0,416	0,487	0,337	0,899	0,494	0,261
PEU4	0,502	0,436	0,426	0,482	0,326	0,818	0,511	0,217
PEU5	0,509	0,407	0,410	0,479	0,255	0,787	0,515	0,273
PU1	0,553	0,475	0,528	0,524	0,336	0,534	0,912	0,309
PU2	0,560	0,469	0,504	0,495	0,266	0,498	0,920	0,276
PU3	0,627	0,497	0,542	0,511	0,298	0,541	0,923	0,267
USE1	0,496	0,949	0,570	0,542	0,280	0,423	0,470	0,097
USE2	0,524	0,949	0,568	0,564	0,270	0,467	0,509	0,118
USE3	0,499	0,923	0,570	0,577	0,224	0,432	0,497	0,113

Source: made by the student based on outputs of Smartpls

4-1-3- Common Method Bias (CMB)

For PLS-SEM, the common method bias (CMB) is observed with a full collinearity assessment approach (Kock, 2015). Testing for multicollinearity is accomplished by assessing the variance inflation factor (VIF) statistics, as seen in

Table 15. The VIF values are less than the recommended cutoff value of three; hence, multicollinearity is not a concern (Hair et al., 2019), and the model is free of common method bias (Kock, 2015).

Table 13: Discriminant Validity

Construct	1	2	3	4	5	6	7	8
1.Attitude	**0.949**							
2.Behavioral intention	0.766	**0.954**						
3.Facilitating conditions	0.532	0.628	**0.906**					
4.IITC	0.449	0.387	0.271	**1.000**				
5.PEOU	0.616	0.486	0.563	0.367	**0.826**			
6.PU	0.633	0.572	0.555	0.324	0.572	**0.918**		
7.Social influence	0.183	0.198	0.371	0.173	0.274	0.309	**0.891**	
8.Use	0.538	0.605	0.596	0.260	0.469	0.523	0.116	**0.941**

Note. Subdiagonal: correlation= (shared variance)$^{1/2}$

Source: made by the student based on outputs of Smartpls

Table 14: Heterotrait-Monotrait Ratio (HTMT)

	ATB	**USE**	**BI**	**FC**	**IITC**	**PEOU**	**PU**	**SI**
ATB								
USE	**0,573**							
BI	**0,806**	**0,642**						
FC	**0,579**	**0,653**	**0,684**					
IITC	**0,455**	**0,284**	**0,392**	**0,298**				
PEOU	**0,674**	**0,516**	**0,530**	**0,635**	**0,399**			
PU	**0,682**	**0,568**	**0,615**	**0,617**	**0,343**	**0,639**		
SI	**0,195**	**0,119**	**0,214**	**0,415**	**0,194**	**0,308**	**0,344**	

Source: made by the student based on outputs of Smartpls

Table 15: Variance inflation factor (VIF) values

	ATB	USE	BI	PEOU	PU
ATB			1,035		
USE					
BI		1,651			
FC		1,651			
IITC				1,000	1,000
PEOU	1,486				
PU	1,486				
SI			1,035		

Source: made by the student based on outputs of Smartpls

4-2- Assessment of Structural Model

Based on the PLS-SEM method, the second step is an evaluation of the structure of the model. The most important evaluation metrics for the structural model are the strength and level of significance of the path coefficient (betas) and the proportion of explained variance (R2 value), F2 value, Q2 (predictive relevance), and model fit.

4-2-1- R square (R2) value

The coefficient of determination R square value is the main approach to evaluating the structural model, and R square is a measure of the model's predictive power (Hair et al., 2017). Hair et al. (2019) proposed that the rule of thumb for R2 values of 0.75, 0.50, and 0.25 can be considered substantial and moderate. In this study, the R2 values extracted in the endogenous factors reached a highly acceptable level. Indeed, this coefficient was estimated as follows: 59% for behavioral intention; 49% for attitude toward e-banking use; and 44% for e-banking use (Table 16).

Table 16: Coefficient of determination (R^2)

Construct	*R* square
BI	0.59
ATB	0.49
USE	0.44

Source: made by the student based on outputs of Smartpls

4-2-2- F2 value

The F-squared value is another principal measurement used to assess the structural model. According to Chin (1998), F2 values of 0,02, 0,15, and 0,35 determine if latent exogenous variables have a small, medium, or large effect size. In our case, as table 17 shows, the f2 value indicates that the model is accurate and that the constructs are important for the general adjustment of the model.

Table 17: Effect size

Variable	USE	BI	ATB	PU	PEOU
BI	0.158				
FC	0.140				
SI		0.008			
ATB		1.347			
PU			0.233		
PEOU			0.190		
IITC				0.120	0.164

Source: made by the student based on outputs of Smartpls

4-2-3- Predictive relevance Q2

Stone-Geisser's Q^2 value represents an evaluation criterion for the cross-validated predictive relevance of the PLS path model (Stone, 1974). Henseler et al. (2009) suggested that Q2-values above zero provide evidence that the observed values are well reconstructed and that the model has predictive relevance. On the other hand,

Hair et al. (2019) suggested that Q2 values larger than zero are meaningful. Nevertheless, Q2 values higher than 0, 0.25, and 0.50 depict the small, medium, and large predictive relevance of the PLS path model. As indicated in Table 18, the predictive relevance Q2 for the model is 0.389. Hence, the model has predictive relevance.

Table 18: Predictive relevance Q2

Variable	Q^2
USE	0.389
ATB	0.443
BI	0.532
PEOU	0.093
PU	0.089

Source: made by the student based on outputs of Smartpls

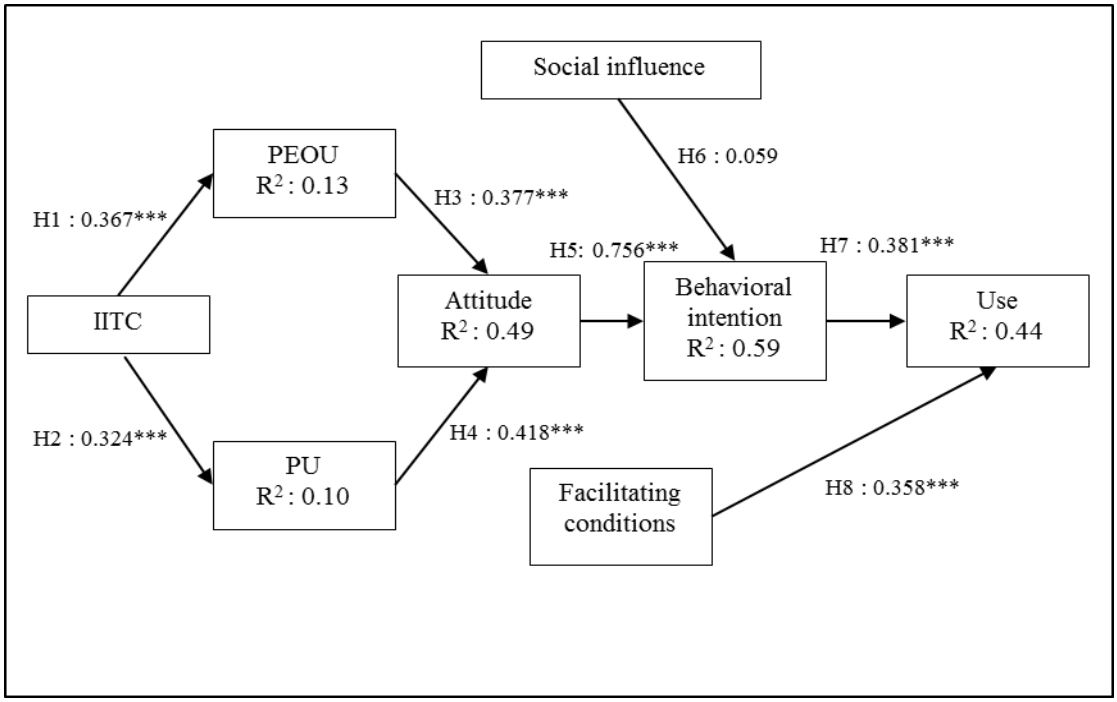
4-2-4- Model fit

To measure the model fit, we used the standardized root mean square residual (SRMR) normed fit index (NFI). The SRMR is defined as the difference between the observed correlation and the model implied correlation matrix. Thus, it allows assessing the average magnitude of the discrepancies between observed and expected correlations as an absolute measure of (the model) fit criterion. Henseler et al. (2014) introduce the SRMR as a goodness of fit measure for PLS-SEM that can be used to avoid model misspecification. A value less than 0.10 or of 0.08 (Hu and Bentler, 1999) is considered a good fit. Normed Fit Index (NFI) One of the first fit measures proposed in the SEM literature is the normed fit index by Bentler and Bonett (1980). The NFI results in values between 0 and 1. The closer the NFI is to 1, the better the fit. NFI values above 0.9 usually represent an acceptable fit. In our study, a low SRMR (0.061) and high NFI (0.96) show a good model fit.

4-2-5- Assessment of path coefficient and test of hypothesis

The final step illustrates the path coefficient and the path diagram for the structural model. Hypothesis testing was obtained for the structural model for this study by a bootstrapping procedure. This is shown in Table 19 and Figure 24. The results confirm the positive influence of individual information technology culture on perceived usefulness and perceived ease of use (β=0.324, p<0.001; β=0.367, p<0.001). Therefore, H1 and H2 are supported. In addition, perceived usefulness proved to have a positive influence on attitude toward e-banking use at a significant level (β=0.418, p<0.001), and perceived ease of use had a significant and positive effect on attitude toward e-banking (β=0.377, p<0.001). Additionally, attitude toward e-banking use has an impact on intention to use e-banking (β=0.756, p<0.001). Therefore, H3, H4, and H5 are supported. On the other hand, H6 was rejected (β=0.059, p=0.3), which suggests that social influence was not approved to have a significant path with behavioral intention. Finally, H7 and H8 were confirmed; accordingly, behavioral intentions (β=0.381, p<0.001) and facilitating conditions (β=0.358, p<0.001) have both a positive and significant impact on e-banking use.

Figure 24 Structural Model



Source: made by the student based on outputs of Smartpls

Table 19: Summary of the hypothesis testing

	B	T Statistics	Result
H1: iitculture → PEOU	0.367***	6.835	Supported
H2: iitculture → PU	0.324***	6.284	Supported
H3: PEOU → Attitude	0.377***	6.680	Supported
H4: PU → Attitude	0.418***	7.289	Supported
H5: Attitude → Behavioral intention	0.756***	25.682	Supported
H6: Social influence → Behavioral intention	0.059	1.672	Rejected
H7: Behavioral intention → Use	0.381***	6.024	Supported
H8: Facilitating conditions → Use	0.358***	6.445	Supported
R^2	**44.1%**		

*p < 0.05 **p < 0.01 ***p < 0.001

Source: made by the student based on outputs of Smartpls

4-3- Mediation test

Mediation was calculated through smartpls (bootstrapping, specific indirect effects). As seen in Table 20, the results show that mediation occurs in the model. Indeed, both PU and PEOU mediate the relationship between IITCS and attitudes toward e-banking use. Furthermore, attitude toward e-banking use mediates the relationship between PEOU and behavioral intention and between PU and behavioral intention. Finally, the results suggest that PU, PEOU, attitude, and behavioral intention mediate the relationship between IITC and e-banking use.

Table 20 Mediation test

	B	**T Statistics**	**Result**
Iitculture → PEOU → Attitude	0.138***	4.236	Supported
Iitculture → PU → Attitude	0.135***	4.102	Supported
Iitculture → PEOU → Attitude → Behavioral intention	0.105***	4.170	Supported
Iitculture → PU → Attitude → Behavioral intention	0.102***	4.023	Supported
Iitculture → PEOU → Attitude → Behavioral intention → Use	0.040**	3.451	Supported
Iitculture → PU → Attitude → Behavioral intention → Use	0.039**	3.113	Supported

*p < 0.05 **p < 0.01 ***p < 0.001

Source: made by the student based on outputs of Smartpls

4-4- Control variables

Finally, as presented in the conceptual model, we introduced gender, age, and education level as control variables. To do so, we used multigroup analysis (MGA) in smartpls 3.2.7.

The first MGA test was “male” and “female”, where both genders were set as a group in smartpls. As shown in Table 21, there is no significant difference between the two genders in regard to any of the path coefficients in the model with a 5% significance level (Hair et al., 2017).

The next MGA test was the age group of the respondents. As displayed in Table 22, there is one significant difference based on the generation. Indeed, the link between social influence and behavioral intention is significant (β=0.115, T value: 2.240, $p<0.05$) for respondents between 29-39 years old but not for any other group.

The last MGA tested was the educational level. As displayed in Table 23, there is no significant difference in any of the path coefficients on any variable.

4-5- Discussion

To identify the impact of individual IT Culture on e-banking adoption by Algerian bank customers, we proposed a theoretical model aggregating TAM elements (PEOU, PU, ATB, and BI), UTAUT elements (SI and FC), and the dimensions of individual information technology culture. This model addressed 8 hypotheses. To test the proposed model and hypotheses, we adopted the questionnaire-based survey method, and the data were analyzed using the PLS-SEM method.

First, the results of this study show major support for our model; the R square of 44.4% exceeded the recommended value of 40% (Straub et al., 2004; Sharma et al, 2020). This means that the explanatory power of the model is significant, and the model has a high predictive value. By adding FC and IITC, we have been able to raise the predictive ability of the TAM model. A study by Marakarkandy et al. (2017) shows that the TAM model explains 29.9% of e-banking. While a study by Von Stetten et al. (2011) found that IITC and PEU explained 58.4% of the variance in PU, another study by Tarhini et al. (2016) found that facilitating conditions and behavioral intention explained 64% of the variance in e-banking use. Therefore, the findings of

this study attest to the importance of IITC as the determinant of both PEOU and PU. The findings are consistent overall with our first and second hypotheses. Indeed, as suggested by Walsh (2010) and Von Stetten et al. (2011), IITC is an antecedent of PEOU and PU.

Second, the findings also show that PEOU and PU are positively related to Attitude toward e-banking use and that Attitude toward e-banking use influences the intention to use e-banking. Thus, as long as individuals perceive that the use of e-banking services is free of effort and facilitates their activity, their attitude toward the use of e-banking is increased, which means that the intention to use e-banking is raised. Therefore, the results supported our original relations with the TAM. This is consistent with the literature in the area of e-banking adoption (Rahi et al, 2017; Kaur and Malik, 2019; Anouze and Alamro, 2020). Furthermore, our results showed that facilitating conditions determine the actual e-banking use. Therefore, the use of e-banking services becomes potential when consumers believe that the resources and supportive services to use e-banking are available. In addition, the findings found that behavioral intention is the most effective factor influencing customer use of e-banking. This indicates that customers will use e-banking if they intend to use these services. Our findings are consistent with the results of Tarhini et al. (2016), Khan et al. (2017), Alalwan et al. (2018), and Baabdullah et al. (2019). Our results also show that social influence did not play a salient role in affecting e-banking use, which means that Algerian bank customers appear to be less concerned about the opinions of their friends, family, work superiors, and colleagues on the use of e-banking. This result differs from those of Tarhini et al. (2016) and Sharma et al. (2020).

Third and finally, concerning the influence of demographic factors on e-banking adoption, the results show that gender has no significant impact on e-banking use. This is consistent with prior studies on e-banking adoption (shi et al., 2008; Al-Somali et al., 2009; Xue et al., 2011). Furthermore, the findings indicate that education level has no significant impact on e-banking use. This result diverges from those reported by Somali et al. (2009). Finally, the results confirm one significant difference based on the generation, as they show that the behavioral intention of respondents between 29 and 39 years old is influenced by social influence. This result offers new research opportunities.

This study has applied the individual IT culture perspective to provide insights into e-banking adoption and investigate the effect of the individual IT culture on e-banking adoption decisions, but it ignores identifying IT culture archetypes. Prior studies on IITC (Gallivan and Srite, 2005; Leidner and Kayworth, 2006; Walsh et al. 2010) indicate that IT culture offers an appropriate medium to investigate IT values, assumptions, and behaviors among users to classify them into particular archetypal groups. The IT culture concept can explain how and why individuals with similar IT-related values (needs and motivations) form a specific IT culture archetype. IT cultural archetypes are manifestations of individuals who express different IT-related needs and motivations to use IT. Hence, their perceptions and use of new IT, such as e-banking, will be different for each IT culture archetype. Therefore, these IT culture archetypes may hold more positive or negative attitudes toward e-banking adoption, and accordingly, this study suggests that IT culture archetypes with high levels of IT needs and motivation exhibit higher perceived usefulness and ease of use of e-banking. IT cultural archetypes with lower IT needs and motivation exhibit lower perceived usefulness and ease of use of e-banking. Thus, in the next section, this study seeks to identify the IT culture archetypes of Algerian bank customers and to identify the relationship between each IT culture archetype and the perceived ease of use and perceived usefulness of e-banking adoption.

Table 21 Multigroup analysis of gender

	Path Coefficients Original (Female)	Path Coefficients Original (Male)	T Value (Female)	T Value (Male)	P Value (Female)	P Value (Male)
Attitude -> Behavioral intention	0,737	0,769	16,171	19,265	0,000	0,000
Behavioral intention -> Use	0,394	0,367	3,740	4,674	0,000	0,000
Facilitating conditions -> Use	0,322	0,387	3,246	5,620	0,001	0,000
Iitculture -> PEOU	0,308	0,425	3,791	5,903	0,000	0,000
Iitculture -> PU	0,213	0,392	2,985	5,098	0,003	0,000
PEOU -> Attitude	0,321	0,436	3,841	5,866	0,000	0,000
PU -> Attitude	0,486	0,356	5,614	4,420	0,000	0,000
Social influence -> Behavioral intention	0,100	0,039	1,646	0,830	0,100	0,407

Source: made by the student based on outputs of Smartpls

Table 22 : Multigroup analysis of age

	Path Coefficients Original (18-28)	Path Coefficients Original (29-39)	Path Coefficients Original (40-50)	Path Coefficients Original (51-61)	T Value (18-28)	T Value (29-39)	T Value (40-50)	T Value (51-61)	P Value (18-28)	P Value (29-39)	P Value (40-50)	P Value (51-61)
Attitude->Behavioral intention	0,779	0,780	0,707	0,799	10,216	19,318	10,180	10,159	0,000	0,000	0,000	0,000
Behavioral intention -> Use	0,437	0,490	0,200	0,407	4,012	5,394	1,428	2,739	0,000	0,000	0,154	0,006
Facilitating conditions -> Use	0,252	0,302	0,432	0,480	2,302	3,670	3,562	3,986	0,022	0,000	0,000	0,000
Iitculture -> PEOU	0,204	0,313	0,569	0,705	1,866	3,426	6,050	8,311	0,063	0,001	0,000	0,000
Iitculture -> PU	0,289	0,289	0,327	0,761	3,041	3,377	2,512	10,333	0,002	0,001	0,012	0,000
PEOU -> Attitude	0,139	0,468	0,435	0,593	1,990	5,343	3,291	4,074	0,047	0,000	0,001	0,000
PU -> Attitude	0,719	0,296	0,313	0,262	10,200	2,838	3,035	1,681	0,000	0,005	0,003	0,093
Social influence-> Behavioral intention	-0,002	0,115	0,040	0,153	0,035	2,240	0,435	1,111	0,972	0,026	0,664	0,267

Source: made by the student based on outputs of Smartpls

Table 23 Multigroup analysis of educational level

	Path Coefficients Original (Secondary school)	Path Coefficients Original (High school	Path Coefficients Original (University)	T Value (Secondary school)	T Value (High school)	T Value (University)	P Value (Secondary school)	P Value (High school)	P Value (University)
Attitude -> Behavioral intention	0,822	0,779	0,712	11,100	15,892	17,356	0,000	0,000	0,000
Behavioral intention -> Use	0,782	0,329	0,358	5,809	2,681	4,715	0,000	0,008	0,000
Facilitating conditions -> Use	0,141	0,389	0,372	0,713	3,387	5,489	0,476	0,001	0,000
litculture -> PEOU	0,161	0,443	0,322	0,935	4,508	4,622	0,350	0,000	0,000
litculture -> PU	0,417	0,347	0,205	2,551	3,087	2,946	0,011	0,002	0,003
PEOU -> Attitude	0,436	0,380	0,372	3,424	3,071	5,240	0,001	0,002	0,000
PU -> Attitude	0,461	0,360	0,410	3,247	3,152	5,230	0,001	0,002	0,000
Social influence -> Behavioral intention	0,077	0,084	0,050	0,553	1,118	1,058	0,580	0,264	0,291

Source: made by the student based on outputs of Smartpls

5. Additional Analysis (IT culture archetypes)

After investigating the concept of IITC as a second-order reflective construct, we use it to identify the IT culture archetypes of Algerian bank customers and to examine the relationship between each IT culture archetype and the perceived ease of use and perceived usefulness of e-banking. The IT culture concept has been used to understand the distinct cultural patterns associated with IT usage at the individual-level (Walsh and Gettler-Summa, 2010; Walsh et al. 2010). It can be used to reveal unique characteristics based on individuals' needs and motivational attributes that can be described as their IT culture archetype. The identification of IT culture archetypes provides a greater understanding of the needs and motivations of users toward information systems adoption such as e-banking. This section presents the IT culture archetypes. It begins with the cluster analysis and identifies the IT culture archetypes present in the dataset. Then, it presents the development of the hypotheses and tests them through multiple regression analysis with dummy variables. The results obtained are then discussed to conclude the section.

5-1- Cluster Analysis

To identify IT culture archetypes, we used cluster analysis. It is the most prevalent method for classifying a large number of cases into relatively homogeneous groups (Hair et al. 2010).

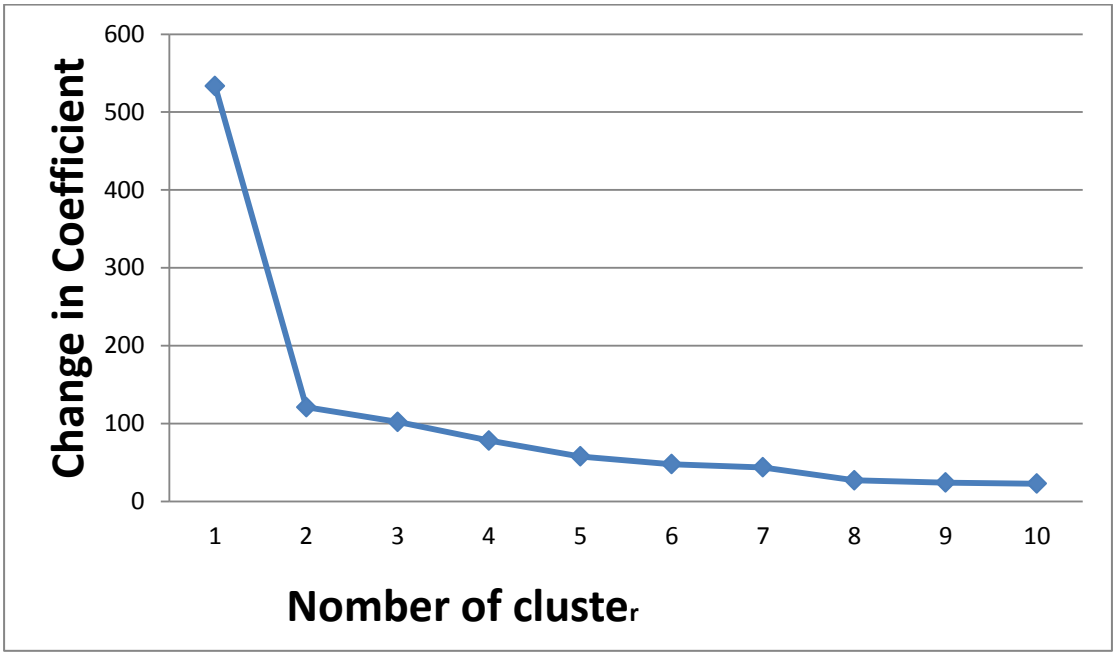
In the first stage, Ward's approach was used to assess the number of clusters in the dataset using hierarchical agglomerative clustering (HAC). Ward's technique was used to minimize the total within-cluster variance, hence ensuring homogeneity among cluster cases and maximizing heterogeneity between clusters (Hair et al. 2010). Table 24 shows the change in coefficient for each collection of clusters that are paired. To explore the most parsimonious number of clusters within the dataset, the change in cluster coefficients for 1 to 10 cluster solutions was calculated (Norusis, 2012). Then, we plotted and inspected a line plot of the change in coefficient obtained from the resulting agglomeration schedule (see Figure 24). A five-cluster solution was considered the most descriptive of the data. As seen in figure 24, the line plot tails off with very little difference in coefficient from six to ten cluster solutions.

Table 24 Hierarchical agglomerative schedule

stage	Cluster 1	Cluster 2	Coefficient	Change in Coefficient	Number of Clusters
350	1	2	523,849	22.758	10
351	32	107	547,985	24.136	09
352	20	22	575,089	27.104	08
353	20	113	618,820	43.731	07
354	3	9	666,541	47.721	06
355	1	14	724,261	57.721	05
356	20	23	802,319	78.057	04
357	20	32	904,346	102.027	03
358	1	3	1025,337	120.991	02
359	1	20	1558,868	533.531	01

Source: made by the student based on outputs of SPSS

Figure 25: Line plot used to identify the number of clusters



Source: made by the student based on outputs of SPSS

In the second stage, a non-hierarchical k-means cluster analysis was used to categorize customers into groups, the mean scores of the four cluster variables were investigated within each cluster. In addition, an ANOVA test to check the null hypothesis regarding the differences in the cluster centroids was also conducted. The F values shown in table 25 are significant at $p<0.001$, indicating that all clustering

variables were relevant in differentiating the clusters in the dataset. According to the results obtained in Table 25, the chosen five-cluster solution comprised a first group (Cluster 1) of 163 customers (45.27%). The second group (Cluster 2) comprised 24 customers (6.67%). The third group (Cluster 3) comprised 81 customers (22.5%). The fourth group (Cluster 4) comprised 70 customers (19.44%). Finally, The five then group (Cluster 5) comprised 22 customers (6.12%).

Table 25: Descriptive statistics and differences between the above cultural profiles

	Clusters					ANOVA
Variable	1 (n=163)	2 (n=24)	3(n=81)	4 (n=70)	5 (n=22)	
	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	F
ACCNEE	4.3415 (0.47712)	2.7917 (1.08040)	3.2469 (0.60731)	4.2190 (0.46064)	2.8182 (1.15345)	83.940***
POWNEE	3.8057 (0.74242)	1.9583 (0.58411)	2.9136 (0.58637)	3.3524 (0.79427)	3.4242 (0. 7405)	47.497***
AFFNEE	4.3211 (0.46391)	2.4444 (0.81452)	3.3169 (0.53203)	4.0143 (0.51838)	3.4242 (0.72871)	97.421***
PRIMNEE	4.1350 (0.53014)	2.2083 (0.46431)	3.2469 (0.59751)	2.6143 (0.67121)	3.5682 (0.76057)	120.307***
INTKNOWIT	4.2229 (0.43988)	2.2222 (0.57033)	3.3868 (0.57845)	3.6095 (0. 55305)	2.7424 (0.87246)	108.595***
EXMOTID	4.3543 (0. 47125)	2.1771 (0. 73897)	3.4938 (0. 54195)	4.1214 (0. 43768)	3.0014 (0. 89672)	194.541***

*** p<0.001

Source: made by the student based on outputs of SPSS

5-2- Interpreting Emerging Clusters

In this stage, the potential archetypal patterns based on the mean scores of the clusters are identified. The analysis was conducted using the results of the cluster analysis and descriptive statistics for each cluster (Table 26). The results are interpreted by evaluating the theoretical rationale for the clusters, examining the mean scores of the variables for each cluster, and developing a label that uniquely describes each cluster. A mean score of '3.44' (High) was used as a mark-up level since all variables were measured on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). For example, a mean score of 3.44 and above on AFFNEE (that is, affiliation needs) for a cluster would indicate that customers in that cluster seek the fulfillment of affiliation needs through IT usage.

The demographic characteristics of each selected cluster were investigated. Table 27 summarizes the findings.

Table 26: The four clusters and their interpretations

	1- Dangerous	2- -Dodgers	3- Compliant Dodgers	4- Disenchanted	5- Passionate
ACCNEE	High	Low	Low	High	Low
POWNEE	High	Low	Low	Low	Low
AFFNEE	High	Low	Low	High	Low
PRIMNEE	High	Low	Low	Low	High
INTMOTKN	High	Low	Low	High	Low
EXTMOTID	High	Low	High	High	Low

Source: made by the student based on outputs of SPSS

Table 27 Demographic attributes of clusters

Cluster	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**
	n = 163	n = 24	n = 81	n = 70	n = 22
Gender					
Male	103 (63.19%)	15(62.5%)	46(56.79%)	34(48.577%)	9(40.90%)
Female	60 (36.80%)	9(37.5%)	35(43.20%)	36(51.42%)	13(59.09%)
Age					
18-28	37(22.69%)	8(33.33%)	18(22.22%)	15(21.42%)	5(22.72%)
29-39	77(47.23%)	8(33.33%)	35(43.20%)	33(47.14%)	5(22.72%)
40-50	29(17.79%)	5(20.83%)	21(25.92%)	16(22.85%)	9(40.90%)
41-51	18(11.04%)	3(12.5%)	4(4.93%)	5(7.14%)	1(4.54%)
61+	2(1.22%)	0	3(3.70%)	1(1.42%)	2(9.09%)
Education					
No studies	0	0	0	0	1(4.54%)
Primary	0	2(8.33%)	1(1.23%)	1(1.42%)	2(9.09%)
Secondary school	3(1.84%)	2(8.33%)	8(9.87%)	4(5.71%)	5(22.72%)
High school	34(20.85%)	9(37.5%)	26(32.09%)	15(21.42%)	6(27.27%)
University	126(77.30%)	11(45.83%)	46(56.79%)	50(71.42%)	8(36.36%)

Source: made by the student based on outputs of SPSS

Cluster 1. Dangerous customers

This group of customers comprises individuals who have high mean scores on all four needs variables. They exhibit primary needs to be fulfilled through IT usage. Thus, they have a strong passion for IT such that they cannot envisage their day-to-day life without the use of IT. They also exhibit affiliation needs portraying that they also seek to socialize and communicate with friends and colleagues using IS/IT. The high mean scores they have on accomplishment needs mean that individuals in cluster 1 obtain

satisfaction in mastering IT even if they spend lots of time doing so. In addition, they have high power needs to be fulfilled using IT, showing that they seek to experience the superiority and authority that comes with obtaining and increasing their knowledge of IT. In terms of their motivational characteristics, customers in cluster 1 experience intrinsic and extrinsic motivation. That is, they recognize how IT usage improves the quality of their work. There is also an intrinsically motivated drive to fulfill their accomplishment, primary, power, and affiliation needs.

The dangerous archetype was identified by Walsh et al. (2010). Compared to the other archetypal patterns that have been presented by Walsh et al. (2010) and Walsh and Gettler-Summa (2010), this archetypal exhibits high power needs. These studies identify dangerous individuals as those who frequently misuse IT in a way that satisfies a craving for power (Odusanya, 2018). According to Walsh et al. (2010), the dangerous archetype is the only group of individuals that exhibit power needs. Particularly, of all five clusters, cluster 1 is the only one to exhibit high power needs to use IT. As a result, cluster 1 closely resembles the explanation of the dangerous individuals in the literature. Therefore, customers in this cluster were classified as "dangerous customers". In the sample, they are the biggest cluster. The demographic characteristics presented in Table 27 show that the dangerous customers archetype had a high percentage of males (63.19%). Moreover, the majority of customers in the dangerous archetype are between 28 and 39 years old (47.23%) and have a university level (77.30%).

Cluster 2. Dodgers customers

This group comprises customers who refuse anything to do with IT, as this group has no perceived need for IT and is indifferent to IT. This archetype was presented by Walsh et al. (2010). Compared to the other archetypal patterns that have been presented by Walsh et al. (2010) and Walsh and Gettler-Summa (2010), this group perceives no need and motivation to use information technology. Therefore, cluster 2 was labeled dodgers customers since among the five clusters, cluster 2 is the only one to show no IT-needs and IT motivations. For the demographic characteristics of this archetype, Table VIII shows that they mostly comprised males (62.5%) and their ages varied from 18 to 51 years.

Cluster 3.Compliant Dodgers customers

This cluster is the second largest group, and comprises individuals who have the least needs and motivation to be fulfilled through IT usage in the sample. They reported low scores on all needs and motivation variables, except extrinsic motivation through identified usage dimension.

This archetype was identified by Odusanya (2018), Compared to the other archetypal patterns that have been presented in previous studies, this group perceives no need for information technology, and they do, however, exhibit extrinsic motivation through identified regulation to use IT. Thus, cluster 3 closely resembles the explanation of the compliant dodger individuals by Odusanya (2018). Therefore, cluster 3 was labeled compliant dodger customers since, among the five clusters, cluster 3 is the only one to show extrinsic motivation through identified regulation with no perceived IT needs. Concerning their demographic characteristics, most of the Compliant Dodgers customers were male (56.79%). The majority of them were between 29 and 39 years old (43.20%), and (25.92%) were between 40 and 50 years old. Most of them had a high school level of education (32.09%) and a university level of education (56.79%).

Cluster 4. Disenchanted customers

This group of customers comprises individuals who have high mean scores on accomplishment needs and affiliation needs. In terms of their motivational characteristics, individuals in cluster 4 experience intrinsic and extrinsic motivation. Customers of this group are disenchanted with IT and expect IT tools to fail.

Walsh et al. (2010) indicated that customers of this group are disenchanted with IT and expect IT tools to fail, but on the other hand, they use information technology when obligatory, to fulfill their socialization needs (Odusanya (2018), and for work purposes, they are aware that they need it for particular tasks (Walsh et al., 2010). Regarding the archetypal patterns existing, this group is similar to the disenchanted individuals in Walsh et al. (2010) and Walsh and Gettler-Summa (2010). They have an extrinsic motivation through identified regulation, intrinsic motivation to know IT, affiliation, and self-accomplishment needs satisfying through the usage of IT. Based on this similarity with Walsh and Gettler-Summa (2010) and Walsh et al. (2010), users in this cluster were labeled as disenchanted customers. Concerning the demographic characteristics associated with this cluster, the disenchanted customers

were mostly females (51.42%) in the 18-28 years (21.42%), 28-29 years (47.14%), and 40-50 years (22.85%) age groups.

Cluster 5 Passionate customers.

The customers of this cluster are distinguished by having high mean scores only of primary needs fulfilled through the usage of IT. This indicates that for this group, using IT has become ingrained in their daily activities. Previous research has revealed a similar archetype. Walsh et al. (2010) and Walsh and Gettler- Summa (2010) defined the passionate archetype who showed only high primary and affiliation needs fulfilling through IT use. However, compared to the passionate users, individuals in Cluster 5 differ in that they do not exhibit affiliation needs. but They become so involved in their usage of IT that they fail to notice the passing of time and struggle to put it down. As a result, individuals in this group were labeled as passionate customers. In terms of demographics, Table 27 shows that this archetype has the biggest percentage of females (59.09%), and most of the customers in this group are between 40 and 50 years old (40.90%).In comparison to the other four archetypes, this is the only one in which the percentage of customers in the older age groups is higher than the percentage of customers in the younger age groups.

5-3- Dummy Variables and Reference Category Selection

The independent variables are categorical variables consisting of fore unique IT culture archetypes, dummy variables will be created to represent each of the four archetypal patterns, and a reference category will be selected. Regression models that use categorical independent variables require one of the independent variables (in this case, cultural archetypes) as a reference category for performing the analysis and interpreting the regression coefficients. The reference category is used as a baseline against which the regression estimates of the other independent variables are compared. In essence, the regression coefficient obtained is then interpreted as the difference between each cultural archetype and the cultural archetype selected as the reference category. Hardy (1993) provides two key recommendations when selecting a reference category. First, it should be a well-defined category rather than a category that lacks detailed specificity. Second, the reference category should not be the one with the fewest or largest cases (Hardy, 1993). All cultural archetypes are well defined, and their characteristics are anchored by relevant studies in the information

systems literature. Based on Hardy's (1993) twin considerations, the compliant-dodgers user IT culture archetype was selected as the reference category.

5-4- Hypotheses Development

The cluster difference between each cultural archetype and the reference category provides a basis for hypothesizing. Cultural archetypes found to manifest more IT-related needs and motivation have a proactive and supporting influence during new IT use (Walsh et al. 2010).

First, the dangerous customers scored highly on all six sources of IT needs and motivation compared to all the other IT culture archetypes identified. Thus, dangerous customers are the most IT-acculturated cluster compared to all clusters obtained from the cluster analysis. For instance, such characteristics make them the most likely to support new IT implementation (Odusanya, 2018; Walsh et al. 2010, Walsh and Kefi, 2008b). In contrast, the compliant dodgers customers only score highly on extrinsic motivation to use IT through identified regulation (Walsh and Gettler-Summa, 2010). Therefore, it can be surmised that dangerous customers show higher levels of IT acculturation than compliant dodgers customers (Walsh, 2009), and it would be expected that users who manifest the dangerous IT culture archetype would also hold higher levels of beliefs of perceived usefulness and perceived ease of use than compliant dodgers customers. Therefore, the following hypotheses are suggested:

H1: Customers who manifest the dangerous IT culture archetype will have higher perceived ease of use beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.

H2: Customers who manifest the dangerous IT culture archetype will have higher perceived usefulness beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.

Second, the results of the cluster analysis show that the disenchanted customers score highly on two sources of IT needs and two IT motivations, namely, self-accomplishment needs, affiliation needs, intrinsic motivation, and extrinsic motivation (Walsh and Gettler-Summa, 2010) compared to compliant dodgers customers only score highly on extrinsic motivation to use IT through identified regulation (Walsh et al. 2010). Therefore, and following the justifications stated above, the level of beliefs of perceived usefulness and perceived ease of use held by

the disenchanted IT culture archetype is expected to be higher than compliant dodgers customers. Hence, the following hypotheses are suggested:

H3: Customers who manifest the disenchanted IT culture archetype will have higher perceived ease of use beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.

H4: Customers who manifest the disenchanted IT culture archetype will have higher perceived usefulness beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.

Third, the findings of cluster analysis also indicated that passionate customers show one IT needs (primary needs). While the compliant dodgers customers exhibit one IT motivation (extrinsic motivation). Walsh et al., 2010 and Walsh and Gettler-Summa, 2010 found that passionate individuals are so absorbed by their need for IT that they cannot imagine their daily lives without it. They also enjoy utilizing IT, compared to compliant dodgers individuals who use IT only when it is important to fulfill extrinsic objectives. this difference between these archetypes allows us to suggest that the passionate customers perceived higher levels of perceived ease of use and usefulness beliefs than the compliant dodgers customers. Thus, it is hypothesized that:

H5: Customers who manifest the passionate IT culture archetype will have higher perceived ease of use beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.

H6: Customers who manifest the passionate IT culture archetype will have higher perceived usefulness beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.

Fourth, in line with the arguments presented above, it is expected that the level of IT needs and IT motivation exhibited by a cultural archetype reflect its IT acculturation. Thus, the greater the sources of IT needs and IT motivation attributed to a cultural archetype, the higher the level of beliefs of perceived usefulness and perceived ease of use (Odusanya et al., 2017; Walsh, 2010; Walsh and Gettler-Summa, 2010). Consequently, cultural archetypes that show low levels of IT needs as well as IT motivation to use IT can be expected to perceive lower levels of beliefs of perceived usefulness and perceived ease of use than archetypes that exhibit high levels of needs and motivation to use IT (Odusanya, 2018). The results of the cluster

analysis show that the dodgers archetype did not score any IT needs or IT motivation compared to compliant dodgers customers that exhibited extrinsic motivation. Therefore, the level of beliefs of perceived usefulness and perceived ease of use held by the dodgers IT culture archetype is expected to be lower than customers in the compliant-dodgers IT culture archetype. Hence, the following hypotheses are suggested:

H7: Customers who manifest the dodgers IT culture archetype will have lower perceived ease of use beliefs of e-banking compared to customers in the compliant-dodgers customers' archetype.

H8: Customers who manifest the dodgers IT culture archetype will have lower perceived usefulness beliefs of e-banking compared to customers in the compliant-dodgers customers' archetype.

5-5- Analysis and Results

To test the hypotheses, we create separate dummy variables for each IT culture archetype using SPSS. These four dummy variables are the independent variables to be incorporated into the regression model. The description of the independent variables is provided in table 28.

Table 28: Independent variable definitions

Variable	Description
Compliant Dodgers	1 if the user has membership the compliant dodgers customers cluster, 0 otherwise
Dodgers	1 if the user has membership the dodgers customers cluster, 0 otherwise
Dangerous	1 if the user has membership dangerous customers cluster, 0 otherwise
Disenchanted	1 if the user has membership disenchanted customers cluster, 0 otherwise
Passionate	1 if the user has membership **passionate** customers cluster, 0 otherwise

Source: made by the student

5-5-1- Correlation Analysis

Table 29 presents the intercorrelations among all the variables in the model. Regarding the IT archetypal patterns, most of their correlations were significant with perceived usefulness and with perceived ease of use except for for disenchanted and passionate IT culture archetype.

Table 29: Intercorrelations between model variables

	1	2	3	4	5	6
1- Dangerous	1					
2- Dodgers	-.243***	1				
3- Disenchanted	-.447***	-.131*	1			
4- Passionate	-.232***	-.068	-.125*	1		
5- PU	.226***	-.176**	.062	-.046	1	
6- PEOU	.292***	-.227***	.033	-.046	.572***	1
*** p<0.001		** p<0.01		* p<0.05		

Source: made by the student based on outputs of SPSS

5-5-2- Multicollinearity Analyses

The presence of multicollinearity was tested using the variance inflation factor (VIF) scores of each variable in the model. VIF scores greater than 2.5 are deemed unacceptable and should be removed from the model (Hair et al. 2010). As shown in Table 30, the multicollinearity among all the independent variables was well below the threshold value (that is, VIF = 10), which confirms that the analysis does not suffer from a multicollinearity problem.

5-5-3- Regression Results

Multiple linear regression analysis was conducted to explore the influence of IT cultural archetypes on perceived usefulness and perceived ease of use and to test the proposed hypotheses. 24. The results of the multiple regression analysis are reported in Table 30.

As seen in Table 30, the independent variables explained 30.3% of the variance in perceived usefulness and 36.6% of the variance in perceived ease of use.

Table 30 Regression results

	Model 1: Dependent	**Model 2: Dependent**	

	variable: PU	variable: PEOU	
Independent variables	**β**	**β**	**VIF**
Dangerous	,305***	,360***	1,648
Disenchanted	,194**	,186**	1,502
Passionate	,044	,054	1,194
Dodgers	-,074	-,112*	1,210
Compliant Dodgers	Baseline	Baseline	
F	8.974***	13.761***	
R^2	0.303	0.366	
*** p<0.001	** p<0.01	* p<0.05	

Source: made by the student based on outputs of SPSS

Table 30 also shows that the regression coefficients (H1: β = 0. 360, p < 0.001; H2: β = 0. 305, p < 0.001) for dangerous customers on PEOU and PU are positive and significant. This means that compared to the compliant dodgers customers, the dangerous customers exhibit a significantly higher level of PEOU and PU beliefs concerning e-banking. Thus, hypotheses one and two are supported.

Concerning hypotheses three and four, the regression coefficients (H3: β = 0.186 p < 0.01; H4: β = 0.194 p < 0.01) for disenchanted customers on perceived ease of use of and perceived usefulness of e-banking are positive and significant. This means that compared to compliant dodgers customers, disenchanted customers exhibit a significantly higher level of perceived ease of use and perceived usefulness beliefs about e-banking. Therefore, hypotheses three and four are supported.

In addition, while the coefficients representing the passionate customers archetype on perceived ease of use (β = 0.054) and perceived usefulness(β = 0. 044) were positive, these relationships were not significant (p > 0.05). This means that the difference in PEOU and PU beliefs of e-banking between the passionate and compliant dodgers customers was not significant. Thus hypotheses five and six are rejected.

Finally, the regression results show negative and significant (H7: β = -0. 112, p<0.05) coefficients for dodgers on perceived ease of use beliefs of e-banking concerning the reference category (the compliant dodgers customers). This means that the dodgers customers exhibited a significantly lower level of perceived ease of use for e-banking than the compliant dodgers customers. Therefore, hypothesis seven is

supported. On the other hand, hypothesis eight is rejected, which means that the difference in PU beliefs of e-banking between the dodgers and compliant dodgers customers was not significant. A summary of the hypothesis testing results is provided in table 31.

Table 31 Results of hypotheses testing

Hypothesis		Results
H1	Customers who manifest the dangerous IT culture archetype will have higher perceived ease of use beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.	Supported
H2	Customers who manifest the dangerous IT culture archetype will have higher perceived usefulness beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.	Supported
H3	Customers who manifest the disenchanted IT culture archetype will have higher perceived ease of use beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.	Supported
H4	Customers who manifest the disenchanted IT culture archetype will have higher perceived usefulness beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.	Supported
H5	Customers who manifest the passionate IT culture archetype will have higher perceived ease of use beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.	Not Supported
H6	Customers who manifest the passionate IT culture archetype will have higher perceived usefulness beliefs of e-banking compared to customers in the compliant dodgers customers' archetype.	Not Supported
H7	Customers who manifest the dodgers IT culture archetype will have lower perceived ease of use beliefs of e-banking compared to customers in the compliant-dodgers customers' archetype.	Supported
H8	Customers who manifest the dodgers IT culture archetype will have lower perceived usefulness beliefs of e-banking compared to customers in the compliant-dodgers customers' archetype.	Not Supported

Source: made by the student

5-6- Discussion

This section aims to identify IT cultural archetypes among bank customers in Algeria and investigate the impact of these cultural archetypes on the perceived ease of use and perceived usefulness of e-banking. To address these objectives, both hierarchical and non-hierarchical clustering approaches were employed in multivariate cluster analysis. In particular, Ward's hierarchical cluster analysis was used to determine the optimal number of clusters. The cluster analysis supported a five-cluster solution since it produced the greatest difference in clustering coefficients. Based on this best solution, a non-hierarchical k-means cluster analysis was used to categorize customers into groups. The substantial ANOVA-based F values confirmed the five-cluster solution. Using the mean scores assigned to each cluster, the interpretation revealed that IT customers may be classified into five IT cultural archetypes (that is, compliant dodgers customers, dodgers, dangerous customers, disenchanted customers and passionate customers).

First, The findings indicated that dangerous customers have greater needs and motivation to use IT compared to the other cultural archetypes. This is consistent with previous findings regarding the acculturation levels of dangerous customers (Walsh et al., 2010; Walsh, 2014; Odusanya, 2018). In contrast, the results showed that the compliant-dodgers customers have lower needs and motivation to use IT compared to the other cultural archetypes. They represent a group of individuals who are extrinsically motivated to use IT. The findings also showed that dodgers customers do not have any IT needs or motivation. As a result, they refuse to work with IT. These results are consistent with previous studies regarding the acculturation levels of dodgers customers (Walsh and Gettler-Summa, 2010; Walsh, 2009; Odusanya, 2018). In addition, cluster analysis revealed that the disenchanted customers have accomplishment needs and affiliation needs and experience intrinsic and extrinsic motivation. They expect IT tools to fail but they use information technology when obligatory and for work purposes. This result is consistent with Walsh et al. (2010). Also, cluster analysis demonstrated that passionate customers have the urge to fulfill their primary needs through IT use and the use of IT has become ingrained in their daily activities. This result is consistent with Walsh et al. (2010) and Walsh and Gettler-Summa, (2010). The findings designated that these archetypes represent five

different and contrasting IT cultures. This is in line with previous studies that have explored IT culture archetypes. For instance, Walsh et al. (2010) identified an IT culture archetype that is enthusiastic and one that is disenchanted and who anticipates the failure of IT tools. In another study, Odusanya (2018) distinguished between five contrasting IT culture archetypes.

Second, the relationships between these IT culture archetypes and perceived ease of use and perceived usefulness were examined using multiple regression analysis with dummy variables. The results revealed that customers who manifested the dangerous and disenchanted IT culture archetypes exhibit higher levels of perceived ease of use and perceived usefulness beliefs than compliant dodgers. Thus, as long as individuals exhibit more needs and motivation to use IT, their perception that the use of e-banking services is free of effort facilitates and useful their activity is increased. This is consistent with the literature on IT culture (Walsh et al., 2010; Odusanya, 2018). Furthermore, our results showed that customers who exhibit the dodgers IT culture archetype scored lower beliefs in perceived ease of use compared to compliant dodgers customers. These customers have no perceived need for IT and are indifferent to IT. Therefore, they exhibit negative beliefs about perceived ease of use. These findings are consistent with the results of Walsh et al. (2010) and Odusanya (2018), which indicated that IT needs to engender a positive relationship with perceived usefulness and perceived ease of use.

.

6. Summary

Chapter three provides the conceptual model and hypotheses of this study. This conceptual model was developed based on the Technology Acceptance Model, the unified theory of acceptance and use of technology, and the Spinning Top Model. It addressed eight hypotheses and identified seven main factors affecting e-banking use: individual IT culture; perceived ease of use; perceived usefulness; attitude toward e-banking; social influence; behavioral intention; and facilitating conditions. Moreover, it includes three control variables: gender, age, and education level.

Second, this chapter covered the approach adopted by this study, along with procedures to execute the research design's data collection and data analysis and the results of the data analysis. This study falls under the positivistic paradigm

(quantitative), and the data were gathered through a survey method. Survey data were entered into the statistical package SPSS for analysis of frequency and percentage distributions of demographic information from respondents. Partial least squares structural equation modeling was used to analyze the data. To assess the measurement model, we evaluated its convergence validity, reliability, and discriminant validity. The results concluded that convergent validity, reliability, and discriminant validity were established. In the second step, to test the hypotheses, we examine the structural model using the strength and level of significance of the path coefficient, the proportion of explained variance, the F2 value, Q2, and the model fit. The results provide support for all variables except social influence. The results of the model analysis indicate that extended TAM with UTAUT and the dimensions of individual information technology culture have a high predictive value. The only demographic variable that significantly affected e-banking use in our study was age. The findings show that the behavioral intention of respondents aged 29–39 years old is influenced by social influence. This means that Algerian bank customers between 29 and 39 appear to be more concerned about the opinions of their friends, family, work superiors, and colleagues on the use of e-banking.

Finally, to identify IT cultural archetypes, both hierarchical and non-hierarchical clustering approaches were employed in multivariate cluster analysis. The cluster analysis supported a five-cluster solution. Using the mean scores assigned to each cluster, the interpretation revealed that IT users may be classified into five IT cultural archetypes (the compliant dodgers customers; the dodgers customers; the dangerous customers; and the disenchanted customers and the passionate customers). Six hypotheses were developed to test the influence of these archetypes on perceived ease of use and perceived usefulness. The results of multiple regression analysis with dummy variables provide support hypotheses one, two, three, foure, and seven. Thus, perceived ease of use and perceived usefulness beliefs are sensitive to the different IT culture archetypes exhibited by customers.

CHAPTER FIVE:
Conclusion

CHAPTER FOUR: Conclusion

1. Introduction

This chapter presents a summary of this research work and shows the results obtained. Additionally, it will show this work's main contributions to theory and practice. In the final part, the limitations of this work and areas for future research will be shown.

2. Summary of the Results

This study aims to examine the impact of individual information technology culture (IITC) on e-banking adoption and use in Algeria and investigate the relationship between IT culture archetypes and perceived ease of use and perceived usefulness of e-banking. A three-phase approach was adopted to investigate the research objectives. First, a conceptual model was developed based on the technology acceptance model, the unified theory of acceptance and use of technology, and the spinning top model. This research model addressed eight hypotheses and identified seven main factors affecting e-banking use: individual IT culture; perceived ease of use; perceived usefulness; attitude toward e-banking; social influence; behavioral intention; and facilitating conditions. Moreover, it includes three control variables: gender, age, and education level. To test the hypotheses, partial least square structural equation modeling was conducted to analyze the data collected from the field survey questionnaires administered to 360 Algerian banks' customers. The results of hypotheses testing provide support for all variables except social influence. The results of the model analysis indicate that extended TAM with UTAUT and the dimensions of individual information technology culture have a high predictive value. The only demographic variable that significantly affected e-banking use in our study was Age.

To achieve the second research objective, both hierarchical and non-hierarchical clustering approaches were employed in multivariate cluster analysis. The cluster analysis supported a five-cluster solution. Using the mean scores assigned to each cluster, the interpretation revealed that e-banking customers may be classified into four IT cultural archetypes (compliant dodger's customers, dodgers customers, dangerous customers, passionate customers and disenchanted customers). To

investigate the impact of these cultural archetypes on the perceived ease of use and perceived usefulness of e-banking, eight hypotheses were developed and tested using multiple regression analysis with dummy variables. The results support hypotheses one two, three, four, and seven. Therefore, the results show that customers who manifested the dangerous and disenchanted IT cultural archetype exhibited a higher level of perceived ease of use than compliant dodgers customers. The results also show that customers who exhibit the dodgers IT culture archetype scored lower beliefs in perceived ease of use compared to compliant dodgers customers.

3. Research Contributions

Previous research has examined culture at the national level by country-specific comparisons (Yuen et al., 2010; Khan, 2022), alternatively focusing on examining cultural dimensions at the individual level (Leidner & Kayworth, 2006). However, to our knowledge, no study has yet investigated the impact of individual IT culture on e-banking adoption.

Thus, this study offers important academic contributions, as it addressed the factors that influence e-banking in Algeria using the lens of TAM, UTAUT, and the IITC orientations of customers. First, the study enriches the contextual implications of the TAM, UTAUT, and the spinning top model used in Algeria as a case of developing countries and proposes a new model to test and validate users' IITC as an antecedent of adoption, confirming and extending the results of Walsh (2009) and Von Stetten et al. (2011) to the case of e-banking. We investigated the IITC lens in the e-banking context to provide a novel perspective to theorize IT culture as a second-order reflective construct generated by connecting it to the first-order latent variables (IT needs and IT motivations). Second, it contributes to the literature on technology adoption and acceptance, which many researchers have strongly recommended be expanded to new contexts (e-banking), new user groups (young consumers), and new cultures (Algeria) (Anouze & Alamro, 2020). Third, the results support the view that the intention to use e-banking services is influenced by many different contextual factors, including the original PEOU and PU, and the IITC. These findings are consistent with those of Mengistie and Worku (2020) and Roy et al. (2017). Finally, this study also contributes to the IT culture literature by illustrating how IT culture archetypes affect the perceived usefulness and perceived ease of use of

e-banking adoption and providing insights into whether the same IT culture archetypes can be identified in settings (e-banking adoption by Algerian bank customers) that are different from those that have already been investigated. Existing research investigating cultural archetypes through individuals' needs and motivation to use IT has mostly employed student samples in educational settings (Walsh and Gettler-Summa, 2010; Walsh et al. 2010). As a result, this study contributes to a more thorough knowledge of how the context of a study may impact the identification of IT cultural archetypes by altering the focus from an educational to a banking setting. Moreover, this study has portrayed the relevance of IT culture as a useful concept to explain how IT culture archetypes might influence individuals' perceived usefulness and perceived ease of use.

Overall, this study has added insight to information technology theory. The results emphasize the importance of cultural factors in managing e-banking use behaviors. A clear focus on e-banking users and their corresponding IT culture archetype is of paramount importance. To date, there has been no theoretical application of the IT culture concept to understand the needs and motivational attributes of e-banking users. This study has linked two research streams and provided new insights through its dual objectives.

4. Managerial implications

From a managerial perspective, these results will provide Algerian banks with some important perceptions. First, the individual IT culture and IT cultural archetypes have a crucial impact on the individual's perception of ease of use and usefulness increases. Therefore, Algerian banks need to take into account the factors of the individual IT culture of e-banking users, and they must design and adjust the e-banking services to fit the individual IT culture of their target customers. Indeed, the results show that dangerous customers exhibited higher levels of perceived ease of use than disenchanted customers. This group of customers has a strong passion for IT, such that they cannot imagine their day-to-day life without the use of IT, and they have high power needs to be fulfilled using IT, showing that they seek to experience the superiority and authority that come with obtaining and increasing their knowledge of IT. In addition, they also exhibit affiliation needs and obtain satisfaction in mastering IT even if they spend lots of time doing so. Therefore, Algerian banks must

design and adjust e-banking services to fit the individual IT culture of dangerous customers. To do so, they should focus on satisfying their power needs (having the perception of seeing and controlling everything through the application, for example). Self-accomplishment (let the user be autonomous in their applications), affiliation (propose contextual elements users can accept or refuse), and intrinsic and extrinsic motivation (making sure they want to connect and use the application – therefore using push strategies could be useful).

Second, Algerian consumers will adopt e-banking services if they believe that such services are easy to use and useful for them. Therefore, if banks want to influence their customers' adoption and use of e-banking, they can design an e-banking account that is simple to open and easy to operate, and they can provide an intelligible user guide to use e-banking services. They should also develop attractive advertising presenting the opportunities and benefits those e-banking offers to customers. Using word-of-mouth could be interesting, as it has been acknowledged as a critical factor in the adoption process.

Third, the adoption of e-banking becomes potential when consumers believe that e-banking infrastructures are available. Thus, Algerian banks need to consider the factors regarding facilitating conditions (e.g., network availability or speed access to the use of e-banking services) to gain more customers. Banks should benefit from the investments in terms of communication made by the providers in Algeria to reinforce the idea that their services are available and secure.

Finally, the only demographic variable that significantly affected e-banking use in our study was Age. The findings show that the behavioral intention of respondents between 29 and 39 years old is influenced by social influence. This means that Algerian bank customers between 29 and 39 appear to be more concerned about the opinions of their friends, family, work superiors, and colleagues on the use of e-banking. Therefore, Algerian banks should focus on targeting that mature segment by observing how users of e-banking are advantaged from its use and sharing their marketing activities on social networking sites.

5. Limitations

Despite its important contribution, this research has some limitations. First, although the conceptual model explains 44.4% of the variance of e-banking use, we

can improve it by adding other variables such as trust, risk, or hedonic motivation. Second, this study adopts convenience sampling of Northwest Algeria. This may negatively reflect generalizability to the whole population. In addition, the majority of respondents is youths and educated. This may not be generalized to illiterate consumers and consumers over age 50. The third limitation of this research is its quantitative approach, which aims to examine the impact of individual information technology culture on e-banking adoption. For instance, longitudinal studies or qualitative research would be a very interesting follow-up on this research to an even better understanding of the IT cultural archetypes that emerged.

References

References

1. Aboelmaged, M.G (2010). Predicting e-procurement adoption in a developing country. Industrial Management & Data Systems, 110(3), 392–414. Doi:10.1108/02635571011030042

2. Aboobucker, I., & Bao, Y. (2018). What obstruct customer acceptance of internet banking? Security and privacy, risk, trust and website usability and the role of moderators. The Journal of High Technology Management Research, 29(1), 109–123. Doi:10.1016/j.hitech.2018.04.010

3. Abubakre, M., Ravishankar, M.N. Coombs, C., (2017), Revisiting the trajectory of IT implementation in organisations: an IT culture perspective, Information Technology & People, Vol. 30 n°3, pp. 562-579.

4. Abubakre, M., Zhou, Y. Zhou, Z., (2020), "The impact of information technology culture and personal innovativeness in information technology on digital entrepreneurship success", Information Technology & People, Vol. Ahead-of-print No. Ahead-of-print

5. Afrouzi, O. A. (2021). Humanitarian behavior across high-/low-context cultures: a comparative analysis between Switzerland and Colombia. *Journal of International Humanitarian Action*, *6*(1), 1-10.Ali, R. H. R. M., Tretiakov, A., & Crump, B. (2009). Models of national culture in information systems research. In *Proc. ACIS* (Vol. 80, p. 12).

6. Afshan, S., Sharif, A., Waseem, N., & Frooghi, R. (2018). Internet banking in Pakistan: An extended technology acceptance perspective. International Journal of Business Information Systems, 27(3), 383-410.

7. Afthanorhan, W. M. A. B. W. (2013). A comparison of partial least square structural equation modeling (PLS-SEM) and covariance based structural equation modeling (CB-SEM) for confirmatory factor analysis. *International Journal of Engineering Science and Innovative Technology*, *2*(5), 198-205.

8. Agourram, H. And Ingham, J. (2007), "The impact of national culture on the meaning of information system success at the user level", Journal of Enterprise Information Management, Vol. 20 No. 6, pp. 641-656. Https://doi.org/10.1108/17410390710830709.

9. Ahmad, S., Bhatti, S. H., & Hwang, Y. (2019). E-service quality and actual use of e-banking: Explanation through the Technology Acceptance Model. *Information Development*, *36*(4), 503-519.

References

10. Ajzen, I. (1991). The theory of planned Behaviour. Organizational behavior and human decision processes, 50(2), 179–211.

11. Akinbulire, T. O., Oluseyi, P. O., Awosope, C. O. A., Odekunle, M., & Idowu, O. M. (2010). Long-Term Electric Load Forecasting for University of Lagos Using Regression Analysis Method.

12. Alalwan, A.A., Dwivedi, Y.K. & Rana, N.P. (2017). Factors influencing adoption of mobile banking by jordanian bank customers: Extending UTAUT2 with trust. International Journal of Information Management, 37(3), 99–110

13. Alalwan, A.A., Dwivedi, Y.K., Rana, N.P.P. and Williams, M.D. (2016), "Consumer adoption of mobile banking in Jordan: Examining the role of usefulness, ease of use, perceived risk and self-efficacy", Journal of Enterprise Information Management, Vol. 29 No. 1, pp. 118-139. Https://doi.org/10.1108/JEIM-04-2015-0035

14. Alalwan. A.A., Rana, N.P., Dwivedi, Y.K. & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: extending UTAUT2 with risk. Journal of Retailing and Consumer Services, 40, 125–138.

15. Al-Debei, M. M., Al-Lozi, E., & Papazafeiropoulou, A. (2013). Why people keep coming back to Facebook: Explaining and predicting continuance participation from an extended theory of planned behaviour perspective. Decision support systems, 55(1), 43-54.

16. Ali, R. H. R. M., Tretiakov, A., & Crump, B. (2009). Models of national culture in information systems research. In *Proc. ACIS* (Vol. 80, p. 12).

17. Al-Jabri, I. M., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. Journal of Electronic Commerce Research, 13(4), 379-391.

18. Al-Qeisi, K. I. (2009). Analyzing the use of UTAUT model in explaining an online behaviour: Internet banking adoption (Doctoral dissertation, Brunel University Brunel Business School phd Theses).

19. Al-Somali, S. A., Gholami, R., & Clegg, B. (2009). An investigation into the acceptance of online banking in Saudi Arabia. Technovation, 29(2), 130–141. Doi:10.1016/j.technovation.2008.07.004

20. Ameme, B. K. (2015). The impact of customer demographic variables on the adoption and use of internet banking in developing economies. *The Journal of Internet Banking and Commerce*, *20*(2).

21. Anouze ALM, Alamro AS (2019) Factors affecting intention to use e-banking in Jordan. International Journal of Bank Marketing. 38 (1): 86-112. Https://doi.org/10.1108/IJBM-10-2018-0271

22. Arif, I., Aslam, W., & Hwang, Y. (2020). Barriers in adoption of internet banking: A structural equation modeling-Neural network approach. Technology in Society, 61, 101231.

23. Asadi, S., & Saedi, A. (2016, August). Decision makers intention for adoption of Green Information Technology. In 2016 3rd International Conference on Computer and Information Sciences (ICCOINS) (pp. 91-96). IEEE.

24. Ashraf, A. R., Thongpapanl, N., & Auh, S. (2014). The application of the technology acceptance model under different cultural contexts: The case of online shopping adoption. Journal of International Marketing, 22(3), 68–93.

25. Azizi, N., Rowlands, B., (2019), Developing the concept of Individual IT Culture and its Impact on IT Risk Management Implementation. 30th Australasian Conference on Information Systems, Perth, Australia

26. Baabdullah, A.M., alalwan, A.A., Rana, N.P., Kizgin, H. & Patil, P. (2019). Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. International Journal of Information Management, 44, 38–52.

27. Bagchi, K., Hart, P., Peterson, M.F., (2004). National culture and information 1013 technology product adoption. Journal of Global Information Technology 1014 Management 7 (4), 29–46.

28. Bali, H. (2022), Evaluation of the Role of Commercial Banks in Supporting and Promoting Financial Inclusion in Algeria during the Period 2014-2020, Finance and Business Economies Review, vol 6, n 1, pp 60-80.

29. Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. Computers in Human Behavior, 50, 418-430.

30. Bellahcene, M. & Khedim, M.M. (2016). Les facteurs influençant l'adoption de l'e-banking par les clients des banques algériennes. Economie & Société, 12, 71-85.

31. Bellal, S. (2008) 'Changement institutionnel et économie parallèle en Algérie : quelques enseignements.', Revue du Chercheur, 6, pp. 1-9.

32. Benlakehal, M. A. (2021) The Relationship of Applying Electronic Payment Systems to Improving Banks Services Quality's from the Viewpoint of Bank's Employees: A Case Study of Commercial Banks in Algeria, Al Bashaer Economic Journal, 7(2), 849-864.

33. Bervell, B., & Umar, I. N. (2017). Validation of the UTAUT model: Re-considering non-linear relationships of Exogeneous variables in higher education technology acceptance research. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(10), 6471-6490.

34. Binyamin, S.S., Rutter, M.J.S. & Smith, S. (2019, March). The Moderating Effect of Education and Experience on the Use of Learning Management Systems. *Paper presented at the 8th International Conference on Educational and Information Technology (ICEIT)*, March 2–4, Cambridge, UK, (pp. 293–300),.

35. Brown, C. E. (2012). *Applied multivariate statistics in geohydrology and related sciences*. Springer Science & Business Media.

36. Brown, I., Hoppe, R., Mugera, P., & Newman, P., Stander, Adrie. (2004). The impact of national environment on the adoption of Internet banking: Compare Singapore and South Africa. Journal of Global Information Management, 12(2), 1-26.

37. Brown, S. H. (2009). Multiple linear regression analysis: a matrix approach with MATLAB. *Alabama Journal of Mathematics*, *34*, 1-3.

38. Burr, W. (1996). Wie Informationstechnik die Bankorganisation verändern könnte," Bank und Market, 11, pp. 28–31.

39. Carter, M., Petter, S., Grover, V., & Thatcher, J. B. (2020). Information Technology Identity: A Key Determinant of IT Feature and Exploratory Usage. *MIS quarterly*, *44*(3).

40. Chaimaa, B., Najib, E., & Rachid, H. (2021). E-banking Overview: Concepts, Challenges and Solutions. Wireless Personal Communications, 117(2), 1059-1078.

41. Chandio FH, Irani Z, Zeki AM, Shah A, Shah SC (2017) Online Banking Information Systems Acceptance: An Empirical Examination of System Characteristics and Web Security. Information Systems Management. 34(1): 50-64. DOI:10.1080/10580530.2017.1254450

42. Chaouali, W., Yahia, I. B., & Souiden, N. (2016). The interplay of counter-conformity motivation, social influence, and trust in customers' intention to adopt Internet banking services: The case of an emerging country. Journal of Retailing and Consumer Services, 28, 209-218. Doi:10.1016/j.jretconser.2015.10.007

43. Chau, K., Y, Patrick, & Lai, S., K,Vincent. (2003). An empirical investigation of the determinants of user acceptance of Internet Banking. Journal of Organizational Computing and Electronic Commerce, 13(2), 123-145.

44. Chauhan, S. (2015). Acceptance of mobile money by poor citizens of India: Integrating trust into the technology acceptance model. Info, l7, 58-68. Doi:10.1108/info-02-2015-0018

45. Chauhan, V., Yadav, R., & Choudhary, V. (2019). Analyzing the impact of consumer innovativeness and perceived risk in internet banking adoption. International Journal of Bank Marketing, 37(1), 323–339. Doi:10.1108/ijbm-02-2018-0028

46. Chawla, D., & Joshi, H. (2018). The moderating effect of demographic variables on mobile banking adoption: An empirical investigation. Global Business Review, 19(3_suppl), S90-S113.

47. Cheriet, S., & Ghanem, H. (2018). The role of El ectronic Payment Systems in the development of the Algerian Banking system. Roa Iktissadia Review, 8(2), 213-224.

48. Cheung, R., & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. Computers & education, 63, 160-175.

49. Cheung, S., F, Chan, K., S, & Wong, S., Y. (1999). Relaxing the Theory of Planned Behavior in understanding waste paper recycling. Environment and Behaviour, 31(5), 587-612.

50. Cheung, W., Chang, M. K., & Lai, V. S. (2000). Prediction of Internet and World Wide Web usage at work: a test of an extended Triandis model. Decision support systems, 30(1), 83-100.

51. Chimaobi, C. M. (2018). *Impact of internet banking on profitability of commercial banks in Nigeria: A Study of Zenith Bank Plc (2005-2017)* (Doctoral dissertation, Godfrey Okoye University).

52. Choi KS, Im I, Hofstede GJ (2016), A cross-cultural comparative analysis of small group collaboration using mobile twitter. Computers in Human Behavior. 65: 308-318. Https://doi.org/10.1016/j.chb.2016.08.043

53. Chong AYL, Ooi KB, Lin B, Tan BI (2010) Online banking adoption: an empirical analysis. International Journal of Bank Marketing. 28(4): 267-287. Https://doi.org/10.1108/02652321011054963

54. Crespo, A. H., & del Bosque, I. R. (2008). The effect of innovativeness on the adoption of B2C e-commerce: A model based on the Theory of Planned Behaviour. Computers in Human Behavior, 24(6), 2830-2847.

55. Curtis RF, Jackson EF. (1962) Multiple indicators in survey research. Am J Sociol;68:195–204.

56. Daniel, E. (1999) 'Provision of electronic banking in the UK and the Republic of Ireland.', International Journal of Bank Marketing, 17(2), pp. 72-82.

57. Davis F, Bagozzi R, Warshaw P (1989) User acceptance of computer technology: A comparison of two theoretical models. Manage Sci. 35: 982–1003. Https://doi.org/10.1287/mnsc.35.8.982 .

58. Delavallee, E., Joly, E, Yoldjiann, A, (2002), "La culture d'entreprise pour manager autrement : Surmonter les résistances culturelles", éd d'Organisation, Paris.

59. Diamantopoulos, A., Riefler, P., & Roth, K. P. (2008). Advancing formative measurement models. *Journal of business research*, *61*(12), 1203-1218.

60. Dowdy, S. C., Gostout, B. S., Shridhar, V., Wu, X., Smith, D. I., Podratz, K. C., & Jiang, S. W. (2005). Biallelic methylation and silencing of paternally expressed gene 3 (PEG3) in gynecologic cancer cell lines. *Gynecologic oncology*, *99*(1), 126-134.

61. Drigă, I., & Isac, C. (2014). E-banking services–features, challenges and benefits. Annals of the University of Petroşani. Economics, 14, 49-58.

62. Firmansyah, I. A., Yasirandi, R., & Utomo, R. G. (2022). The influence of efficacy, credibility, and normative pressure to M-banking adoption level in Indonesia. *Procedia Computer Science*, *197*, 51-60.

63. Fishbein M, Ajzen I (1975). Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research. Reading, MA: Addison-Wesley

64. Fishbein, M. (2008). Reasoned action, theory of. The International Encyclopedia of Communication.

65. Fitzgerald, B. And Howcroft, D. (1998) Towards Dissolution of the IS Research Debate: From Polarisation to Polarity. *Journal of Information Technology*, 13 (4) 313- 326.

66. Fornell, P. H., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. JMR, Journal of Marketing Research, 18(1), 39–50.

67. Frust, K., Lang, W., W, & Nolle, D., E. (2000). Internet Banking: Developments and Prospects: Office of the Comptroller of the currency(September).

68. Gallivan M., Srite M. (2005) Information technology and culture: identifying fragmentary and holistic perspectives of culture. Information and Organization. 15 (4): 295–338. Https://doi.org/10.1016/j.infoandorg.2005.02.005

69. Gan, C., Clemes, M., Limsombunchai, V., and Weng, A. (2006) A logit analysis of electronic banking in New Zealand. Information *Journal of Bank Marketing*, 24(6) 360-383.

70. Gan, C., Clemes, M., Limsombunchai, V., and Weng, A. (2006) A logit analysis of electronic banking in New Zealand. Information *Journal of Bank Marketing*, 24(6) 360-383.

71. Garavaglia S, Sharma A (1998) A smart guide to dummy variables: Four applications and a macro. In: Proceedings of the northeast SAS users group conference, p 43

72. Gefen, D. Rigdon, E. & Straub, D. (2011). Editor's Comments: An Update and Extension to SEM Guidelines for Administrative and Social Science Research. MIS Quarterly, 35(2), iii. Doi:10.2307/23044042.

73. George, A. (2018). Perception of Internet banking users – A structured equation modelling (SEM) approach. IIMB Management Review, 30, 357-368. Doi:10.1016/j.iimb.2018.05.007

74. Gerrard, P., Cunningham, J.B. & Devlin, J.F. (2006) Why consumers are not using internet banking: a qualitative study. *Journal of Services Marketing*, 20(3), 160-168.

75. Ghalandari, K. (2012) The effect of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran: The moderating role of age and gender. *Middle-East Journal of Scientific Research*, 12, 801-807.

76. GIE Monétique, Available from: "https://giemonetique.dz" [Accessed 15th april 2022].

77. Goldstein, G. (2013). Application of cluster analysis to investigate neuropsychological heterogeneity in psychiatric and neurological patients. In *Cluster Analysis in Neuropsychological Research* (pp. 37-70). Springer, New York, NY.

78. Guan, M., & So, J. (2016). Influence of Social Identity on Self-Efficacy Beliefs Through Perceived Social Support: A Social Identity Theory Perspective. Communication Studies, 67(5), 588–604. Doi:10.1080/10510974.2016.1239645

79. Hacini, I., Dahou, K. B., & Bendiabdellah, A. (2012). Determinants of the Intention to Use Internet Banking. Mediterranean Journal of Social Sciences, 3(5), 33-33.

80. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate Data Analysis.* Upper Saddle River, New Jersey: Prentice Hall.

81. Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage publications.

82. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–151.

83. Hair, J.F., Sarstedt, M. And Ringle, C.M. (2019), Rethinking some of the rethinking of partial least squares, European Journal of Marketing (forthcoming).

84. Hall ET, Hall MR (1990) Understanding cultural differences: Germans, French and Americans. Intercultural Press, Yarmouth, England.

85. Hanges, P. J., & Dickson, M. W. (2004). The development and validation of the GLOBE culture and leadership scales. *Culture, leadership, and organizations: The GLOBE study of*, *62*, 122-151.

86. Haque, A., Ismail, A. Z. H., & Daraz, A. H. (2009). Issues of e-banking transaction: an empirical investigation on Malaysian customers perception. Journal of applied Sciences, 9(10), 1870-1879.

87. Hardy, M.A. (1993). *Regression with Dummy Variables* (Vol. 93). Sage.

88. Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2005). Cluster analysis in family psychology research. *Journal of Family Psychology*, *19*(1), 121.

89. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*(1), 115-135

90. Henseler, J., Ringle, C., & Sinkovics, R. (2009). The use of partial least squares path modeling in international marketing. Advances in International Marketing (AIM), 20, 277-320

91. Herrero, A., & Rodríguez Del Bosque, I. (2008). The effect of innovativeness on the adoption of B2C e-commerce: a model based on the theory of planned behavior. Computers in Human Behavior, 24(6), 2830-2847

92. Hoffman, N., & Klepper, R. (2000). Assimilating New Technologies: The Role of Organizational Culture. Information Systems Management, 17(3), 36–42. Doi:10.1201/1078/43192.17.3.20000

93. Hofstede G (1991). Cultures and organizations: Software of the mind. London: mcgraw-Hill

94. Hofstede, G. & Bond, M. H. (1988). The Confucius connection: from cultural roots to economic growth. *Organizational Dynamics, 16*, 4-21

95. Hofstede, G. (1980), Culture's Consequences, Beverley Hills, Sage, CA

96. Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, *2*(1), 2307-0919.

97. Hofstede, G., Hofstede, G. J. & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind* (Rev. 3rd ed.). New York: mcgraw-Hill.

98. Hogg, MA. (2016), Social identity theory. In mckeown, S., Haji, R., & Ferguson, N. (Eds.). (2016). Understanding Peace and Conflict Through Social Identity Theory. Peace Psychology Book Series. Doi:10.1007/978-3-319-29869-6

99. Hong, Y. (2009). A dynamic constructivist approach to culture: Moving from describing culture to explaining culture. In R. S. Wyer Jr., C. Chiu, & Y. Hong (Eds.), Understanding culture: Theory research application (pp. 3–23). New York: Psychology Press.

100. House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). Culture, Leadership, and Organizations – the Globe Study of 62 Societies. Thousand Oaks: Sage Publications.

101. Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 1–15). Sage Publications, Inc.

102. Hussey, J. & Hussey, R. (1997). *Business research: a practical guide for undergraduate and postgraduate students*. Basingstoke: Macmillan

103. Hwang, Y. (2005). Investigating enterprise systems adoption: uncertainty avoidance, intrinsic motivation, and the technology acceptance model. European journal of information systems, 14(2), 150-161.

104. Indexmundi, Available from: "https://www.indexmundi.com/algeria/age_structure"[Accessed 29th September 2022]

105. Union of Arab Banks, Available from: "https://uabonline.org" [Accessed 13th October 2022]

106. Jackson, S. (2011). Organizational culture and information systems adoption: A three-perspective approach. Information and Organization, 21(2), 57–83. Doi:10.1016/j.infoandorg.2011.03

107. Jais SD (2007) Structural Equation Modeling. In: The Successful Use of Information in Multinational Companies. DUV. Https://doi.org/10.1007/978-3-8350-9371-3_12

108. Jen, W., Lu, T., & Liu, P. T. (2009). An integrated analysis of technology acceptance behaviour models: Comparison of three major models. MIS REVIEW: An International Journal, 15(1), 89-121.

109. Kaarst-Brown, M.L., Robey, D., 1999. More on myth, magic and metaphor: cultural insights into the management of information technology in organizations. Information Technology and People 12 (2), 192–217.

110. Kalinić, Z., Liébana-Cabanillas, F.J., Muñoz-Leiva, F. & Marinković, V. (2019). The moderating impact of gender on the acceptance of peer-to-peer mobile payment systems. *International Journal of Bank Marketing*, 38(1), 138-158.

111. Kaur, S. And Arora, S. (2020), "Role of perceived risk in online banking and its impact on behavioral intention: trust as a moderator", Journal of Asia Business Studies, Vol. 15 No. 1, pp. 1-30. Https://doi.org/10.1108/JABS-08-2019-0252

112. Khan I, Zahid Hameed, Sajjad Nawaz Khan, Safeer Ullah Khan & Muhammad Tahir Khan (2021): Exploring the Effects of Culture on Acceptance of Online Banking: A Comparative Study of Pakistan and Turkey by Using the Extended UTAUT Model, Journal of Internet Commerce, DOI: 10.1080/15332861.2021.1882749

113. Khan, I. U. (2022). How does culture influence digital banking? A comparative study based on the unified model. *Technology in Society*, *68*, 101822.

114. Khan, R. A. (2017). Adoption of learning management systems in Saudi higher educational institutions (Doctoral dissertation, University of Portsmouth).

115. Kim, H. J., Mannino, M., & Nieschwietz, R. J. (2009). Information technology acceptance in the internal audit profession: Impact of technology features and complexity. *International Journal of Accounting Information Systems*, *10*(4), 214-228.

116. Kondabagil, J. (2007). Risk management in electronic banking: Concepts and best practices (Vol. 454). John Wiley & Sons.

117. Korte Russell F, (2007), "A review of social identity theory with implications for training and development", Journal of European Industrial Training, Vol. 31 Iss 3 pp. 166 – 180

118. Krishna Murthy, M., & Varalakshmi, S. (2021). Determinants of Trust, Security, Privacy and Risk Factors in Embracing Online Banking. Financial Inclusion in Emerging Markets (pp. 197-215). Palgrave Macmillan, Singapore.

119. Lai, V. S. & Li, H. (2005). Technology acceptance model for Internet banking: An invariance analysis. Information & Management, 42(2), 373-86.

120. Laukkanen, T. (2016) Consumer adoption versus rejection decisions in seemingly similar service innovations: the case of the internet and mobile banking. *Journal of Business Research*, 69(7), 2432-2439.

121. Lazreg, M. (2015) Developpement de la monetique en Algerie: realité et perspectives.Doctorate. Abou Bakr Belkaid University of Tlemcen, Algeria.

122. Lee M.-C. (2009) Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. Electronic commerce research and applications. 8: 130-141. Https://doi.org/10.1016/j.elerap.2008.11.006.

123. Lee, H., Cho, H., Xu, W. & Fairhurst, A. (2010). The influence of consumer traits and demographics on intention to use retail self-service checkouts. *Mark Int Plan*, 28(1):46– 58.

124. Lee, S. G., Trimi, S., & Kim, C. (2013). The impact of cultural differences on technology adoption. Journal of World Business, 48(1), 20–29.

125. Leguina, A. (2015). *A primer on partial least squares structural equation modeling (PLS-SEM). International Journal of Research & Method in Education, 38(2), 220–221.* Doi:10.1080/1743727x.2015.1005806

126. Leidner DE (2010) Globalization, culture, and information: Towards global knowledge transparency, The Journal of Strategic Information Systems. 19 (2):69-77. Https://doi.org/10.1016/j.jsis.2010.02.006

127. Leidner DE, Kayworth T (2006) A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict. MIS Quarterly. 30(2): 357-399

128. Liao, S., Shao, Y. P., Wang, H., & Chen, A. (1999). The adoption of virtual banking: An empirical study. International Journal of Information Management, 19(1), 63–74.

129. Lin, C. (2013). Exploring the relationship between technology acceptance model and usability test. Information Technology and Management, 14, 243–255.

130. Lindsay, R., Jackson, T. W., & Cooke, L. (2011). Adapted technology acceptance model for mobile policing. Journal of Systems and Information Technology, 13(4), 389–407. Doi:10.1108/13287261111183988

131. Lindsay, R., Jackson, T. W., & Cooke, L. (2011). Adapted technology acceptance model for mobile policing. Journal of Systems and Information Technology, 13(4), 389–407. Doi:10.1108/13287261111183988

132. Liu, Y., & Li, H. (2010). Mobile internet diffusion in China: an empirical study. Industrial Management & Data Systems. Vol. 110, No. 3: 309-324,

133. Macqueen, J. (1967) Some methods for classification and analysis of multivariate observations, Proceedings of the Fifth Berkeley Symposium On Mathematical Statistics and Probabilities, 1, 281-296

134. Madhavan, S. (2018). Electronic Banking Services–A Prelude. *IMPACT: International Journal of Research in Business Management (IMPACT: IJRBM), ISSN (P)*, 2347-4572.

135. Makanyeza, C. (2017), "Determinants of consumers' intention to adopt mobile banking services in Zimbabwe", International Journal of Bank Marketing, Vol. 35 No. 6, pp. 997-1017. Https://doi.org/10.1108/IJBM-07-2016-0099.

136. Mansour, I. H. F., Eljelly, A. M. A., & Abdullah, A. M. A. (2016). Consumers' attitude towards e-banking services in Islamic banks: The case of Sudan. Review of International Business and Strategy, 26, 244-260. Doi:10.1108/RIBS-02-2014-0024

137. Marakarkandy B, Yajnik N, Dasgupta C (2017) Enabling internet banking adoption: An empirical examination with an augmented technology acceptance model (TAM). Journal of Enterprise Information Management. 30(2): 263-294, https://doi.org/10.1108/JEIM-10-2015-0094

138. Marchewka, J.T. & Kostiwa, K. (2007). An Application of the UTAUT model for understanding student perceptions using course management software. Communications of the IIMA, 7(2), 93-104.

139. Martin, J. (2002). Organisational culture: Mapping the terrain. Sage Publications. Matthews, D. (2010). The changing face of public sector employment 1999– 2009. Economic & Labour Market Review, 4(7), pp. 28-35.

140. Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. International Journal of Information Management, 34(1), 1–13. Doi:10.1016/j.ijinfomgt.2013.06.002

141. Mehta, A., Morris, N. P., Swinnerton, B., & Homer, M. (2019). The influence of values on E-learning adoption. *Computers & Education*, *141*, 103617.

142. Melitski, J., Gavin, D., & Gavin, J. (2010). Technology adoption and organizational culture in public organizations. International Journal of Organization Theory & Behavior, 13(4), 546–568. Doi:10.1108/ijotb-13-04-2010-b005

143. Mengistie HS, Worku A (2020) Measuring Customer's Attitude Towards Internet Banking Adoption In Ethiopia. Journal of Business and Management. 22 (6): 22-32.

144. Merhi, M., Hone, K. & Tarhini, A. (2019). A cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy and trust. Technology in Society, 59, 1-12.

145. Min Q, Li Y, Ji S (2009) The Effects of Individual-level Culture on Mobile Commerce Adoption: An Empirical Study. Eighth International Conference on Mobile Business. DOI 10.1109/ICMB.2009.59.

146. Mohd Thas Thaker, H., Mohd Thas Thaker, M.A., Khaliq, A., Allah Pitchay, A. And Iqbal Hussain, H. (2021), "Behavioural intention and adoption of internet banking among clients' of Islamic banks in Malaysia: an analysis using UTAUT2", Journal of Islamic Marketing, Vol. Ahead-of-print No. Ahead-of-print. Https://doi.org/10.1108/JIMA-11-2019-0228

147. Moore, G. C., & Benbasat, I. (1996). Integrating diffusion of innovations and theory of reasoned action models to predict utilization of information technology by end-users. In Diffusion and adoption of information technology (pp. 132-146). Springer, Boston, MA.

148. Moore, G. C., & Benbasat, I. (1996). Integrating Diffusion of Innovations and Theory of Reasoned Action models to predict utilization of information technology by end-users. Diffusion and Adoption of Information Technology, 132–146. Doi:10.1007/978-0-387-34982-4_10

149. Morris, M., and Venkatesh, V. (2000) Age Differences in Technology Adoption Decisions: Implications for a Changing Work Force. *Personnel psychology***,** 53 (2) 375- 403.

150. Mortimer, G., Neale, L., Hasan, S.F.E. and Dunphy, B. (2015), "Investigating the factors influencing the adoption of m-banking: a cross cultural study", International Journal of Bank Marketing, Vol. 33 No. 4, pp. 545 - 570. Https://doi.org/10.1108/IJBM-07-2014-0100

151. Munoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. Spanish Journal of Marketing-ESIC, 21(1), 25-38.

152. Mwiya, B., Chikumbi, F., Shikaputo, C., Kabala, E., Kaulung'ombe, B. & Siachinji, B. (2017). Examining Factors Influencing E-Banking Adoption: Evidence from Bank Customers in Zambia. American Journal of Industrial and Business Management, 7, 741-759.

153. Namahoot, K. S., & Laohavichien, T. (2018). Assessing the intentions to use internet banking. International Journal of Bank Marketing, 36(2), 256–276. Doi:10.1108/ijbm-11-2016-0159

154. Nitzl, C. (2010). Nitzl, C., 2010. Eine anwenderorientierte Einführung in Partial Least Square (PLS)-Methode. Inst. Für Industrielles Management. Available at SSRN 20973240

155. Norušis, M. J. (2012). Cluster analysis. IBM SPSS Statistics 19 statistical procedures companion.

156. Novita, V. (2017). A study of the factors that influence the level of consumer satisfaction towards the use of Internet banking. Journal of Applied Management and Business, 3, 87-101. Doi:10.26737/jtmb.v3i2.211

References

157. Nwakoby, N. P., Okoye, J. N., Ezejiofor, R. A., Anukwu, C. C., & Ihediwa, A. (2020). Electronic Banking and Profitability: Empirical Evidence from Selected Banks in Nigeria. *Journal of Economics and Business*, *3*(2).

158. Odusanya, K. A. (2018). *The effects of cultural archetypes on the perceived usefulness of IT: evidence from a UK public sector organisation* (Doctoral dissertation, Loughborough University).

159. Odusanya, K., Coombs, C., Doherty, N., (2017), Exploring the Link between IT Culture and Perceptions of Individual Benefits Realized: An Empirical Analysis, the Twenty-First DIGIT Workshop, Ireland.

160. Odusanya, Kayode A.; Coombs, Crispin R.; and Doherty, Neil F., "Exploiting Benefits from IS/IT Investments: An IT Culture Perspective" (2015). ECIS 2015 Research-in-Progress Papers. Paper 56.

161. Olushola, T. & Abiola, J.O. (2017). The efficacy of technology acceptance model: A review of applicable theoretical models in information technology researches. Journal of Research in Business and Management, 4(11), 70-83.

162. Owusu, G. M. Y., Bekoe, R. A., Addo-Yobo, A. A., & Otieku, J. (2020). *Mobile Banking Adoption among the Ghanaian Youth. Journal of African Business, 1–22.* Doi:10.1080/15228916.2020.1753003.

163. Ozbay, N., Yerel, S., & Ankara, H. (2009, June). Investigation of cluster analysis in surface water in Yesilirmak river. In *1st International Symposium on Sustainable Development, Sarajevo, Bosnia, Herzegovina* (Vol. 237240).

164. Papies, D., & Clement, M. (2008). Adoption of new movie distribution services on the Internet. Journal of media economics, 21(3), 131-157.

165. Park, S., Lee, L. & Yi, M.Y. (2011). Group-level effects of facilitating conditions on individual acceptance of information systems. Information Technology and Management, 12, 315–334.

166. Patel, K.J. and Patel, H.J. (2018), "Adoption of internet banking services in Gujarat: An extension of TAM with perceived security and social influence", International Journal of Bank Marketing, Vol. 36 No. 1, pp. 147-169. Https://doi.org/10.1108/IJBM-08-2016-0104

167. Pease, W., & Rowe, M. (2004). Diffusion Of Innovation – The Adoption of Electronic Commerce By Small And Medium Enterprises (smes) - A Comparative Analysis'. Paper presented at the collecter 2004, Adelaide, Australia.

168. Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Sage.

169. Prasanna, R. & Huggins, Y.J (2016). Factors affecting the acceptance of information systems supporting emergency operations centre. Computers in Human Behavior, 57, 168-181.

170. Priya, R., Gandhi, A. V., & Shaikh, A. (2018). Mobile banking adoption in an emerging economy: An empirical analysis of young Indian consumers. Benchmarking: An International Journal, 25, 743-762. Doi:10.1108/BIJ-01-2016-0009

171. Rahi, S. And Abd. Ghani, M. (2018), "The role of UTAUT, DOI, perceived technology security and game elements in internet banking adoption", World Journal of Science, Technology and Sustainable Development, Vol. 15 No. 4, pp. 338-356. Https://doi.org/10.1108/WJSTSD-05-2018-0040.

172. Rahi, S., Ghani, M.A. & Ngah, A.H. (2019). Integration of unified theory of acceptance and use of technology in internet banking adoption setting: Evidence from Pakistan. Technology in Society, 58, 101-120.

173. Rahman, M. T., Hasan, K. N., & Sokolowski, P. (2022). Evaluation of wind farm aggregation using probabilistic clustering algorithms for power system stability assessment. *Sustainable Energy, Grids and Networks*, *30*, 100678.

174. Rawashdeh, A. (2015). Factors affecting adoption of internet banking in Jordan: Chartered accountant's perspective. International Journal of Bank Marketing, 33(4), 510-529.

175. Raza, S. A., Shah, N., & Ali, M. (2019). Acceptance of mobile banking in Islamic banks: evidence from modified UTAUT model. Journal of Islamic Marketing.

176. Remenyi, D., Williams, B., Money, A. & Swartz, E. (1998). *Doing research in business and management*. London: Sage

177. Riffai, M. M. M. A., Grant, K., & Edgar, D. (2012). Big TAM in Oman: Exploring the promise of on-line banking, its adoption by customers and the challenges of banking in Oman. International journal of information management, 32(3), 239-250.

178. Riskinanto, A., Kelana, B., & Hilmawan, D. R. (2017). The moderation effect of age on adopting e-payment technology. Procedia Computer Science, 124, 536-543.

179. Rogers, E.M. (1983). Diffusion of Innovations. The Free Press, New York, NY

180. Rogers, W. A., Gilbert, D. K., & Cabrera, E. F. (1997). An analysis of automatic teller machine usage by older adults: A structured interview approach. *Applied Ergonomics*, *28*(3), 173-180.

181. Rokeach, M. (1973). The nature of human values. Free press.

182. Rose, J. & Fogarty, G. (2010). *Technology readiness and segmentation profile of mature consumers.* In: Proceedings of 4th Biennial Conference of the Academy of World Business, Marketing and Management Development, 4:57-65. 12-15 July 2010, Oulu, Finland.

183. Roy SK, Balaji MS, Kesharwani A, Sekhon H (2017) Predicting Internet banking adoption in India: a perceived risk perspective. Journal of Strategic Marketing. 25(5-6): 418-438. Https://doi.org/10.1080/0965254X.2016.1148771.

184. Salimon, M. G., Yusoff, R. Z. B., & Mokhtar, S. S. M. (2017) "The mediating role of hedonic motivation on the relationship between adoption of e-banking and its determinants", International Journal of Bank Marketing, Vol. 35 Issue: 4,pp. -, doi: 10.1108/IJBM-05-2016-0060

185. Samar, R., & Mazuri, A. G. (2019). Does gamified elements influence on user's intention to adopt internet banking with integration of UTAUT and General Self-Confidence? International Journal of Business Excellence, 19(3), 394-414.

186. Sánchez-Torres, J.A., Arroyo-Cañada, F., Varon-Sandobal, A. & Sánchez Alzate, J.A. (2017). Differences between e-commerce buyers and non-buyers in Colombia: The moderating effect of educational level and socioeconomic status on electronic purchase intention. *Dyna rev.fac.nac.minas*, 84(202), 175-189.

187. Santouridis, I., & Kyritsi, M. (2014). Investigating the determinants of internet banking adoption in Greece. Procedia Economics and Finance, 9, 501-510.

188. Schein, E. H. (2010). Organisational culture and leadership (Vol. 2). John Wiley & Sons.

189. Schein, E., (1991) What is Culture?" In Reframing Organizational Culture, (eds) Frost, P.J.

190. Schein, Edgar H., (1985) Organizational Culture and Leadership, Jossey-Bass, San Francisco:.

191. Schneider, A., Hommel, G., & Blettner, M. (2010). Linear regression analysis:

part 14 of a series on evaluation of scientific publications. *Deutsches Ärzteblatt International*, *107*(44), 776.

192. Schwartz, S.H. (1992) Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries. In: M. Zanna. (Ed.), *Advances in Experimental Social Psychology*, Vol.25, San Diego: Academic Press, 1-65.

193. Schwartz, S.H. (1994) Beyond individualism/collectivism: new cultural dimensions of values, In: U. Kim, H.C. Triandis, C. Kagitcibasi, S.C Choi, and G. Yoon, [Eds.], **Individualism and Collectivism: Theory, Method, and Applications**, London: Sage publications, 85-119.

194. Schwartz, S.H. (2006) A theory of cultural value orientations: Explication and applications. *Comparative Sociology*, 5(2-3)137-182.

195. Schwarz, G. M., & Watson, B. M. (2005). The influence of perceptions of social identity on information technology-enabled change. Group & Organization Management, 30(3), 289-318.

196. Seber, G. (1984) Multivariate Observations. New York: John Wiley and Sons.

197. Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review.

198. Sharma, R., Singh, G., & Sharma, S. (2020). Modelling internet banking adoption in Fiji: A developing country perspective. International Journal of Information Management, 53, 102-116. Doi:10.1016/j.ijinfomgt.2020.102116

199. Shi, W., Shambare, N., & Wang, J. (2008). The adoption of internet banking: An institutional theory perspective. Journal of Financial Services Marketing, 12(4), 272–286. Doi:10.1057/palgrave.fsm.4760081

200. Shih, P., Hung. (2004). An empirical study of predicting user acceptance of e-shopping on web. Information and management, 41, 351-368.

201. Singhal, D., & Padhmanabhan, V. (2008). A study on customer perception towards internet banking: Identifying major contributing factors. Journal of Nepalese business studies, 5(1), 101-111.

202. Skrivanek, S. (2009). The use of dummy variables in regression analysis. *More Steam, LLC*.

203. Smith, P., and Schwartz, S. (1997) Values, In: W. Berry, Y. Poortinga, J. Paney, P. Dasen, and T.S. Saraswathi [Eds.]: Handbook of Cross-Cultural Psychology: Basic processes and Human development, vol. 3, 77-118.

204. Sohail, M.S. and Shanmugham, B. (2003) 'E-banking and customer preferences in Malaysia: An empirical investigation', Information Sciences, 150(3), pp. 207- 217.

205. Straub D, Loch K, Evaristo R., Karahanna E, Srite M, (2002) Toward a Theory-Based Measurement of Culture. Journal of Global Information management. 10(1):13–23. DOI: 10.4018/jgim.2002010102

206. Suganthi, & Balachandran, B. A. (2001). Internet Banking Patronage: An Empirical Investigation of Malaysia. Journal of Internet Banking and Commerce, 6(1).

207. Szopiński, T. S. (2016). Factors affecting the adoption of online banking in Poland. Journal of business research, 69(11), 4763-4768.

208. Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. Procedia Manufacturing, 22, 960–967. Doi:10.1016/j.promfg.2018.03.137

209. Taiwo, J. N., & Agwu, M. E. (2017). The role of e-banking on operational efficiency of banks in Nigeria. Basic Research Journal of Business Management and Accounts, 6(1), 01-10.

210. Tajfel H, Turner J (1979) An integrative theory of intergroup conflict. In W.G. Austin & S. Worchel (Eds), The social psychology of intergroup relations, 2nd edn. Chicago, IL: Nelson-Hall Publishers.

211. Tajfel, H. E. (1978). Differentiation between social groups: Studies in the social psychology of intergroup relations. Academic Press.

212. Takieddine, S. & Sun, J. (2015). Internet banking diffusion: a country-level analysis. Electronic Commerce Research and Applications, 14(5), 361-371.

213. Tarhini, A., Hone, K. & Liu, X. (2014). Measuring the moderating effect of gender and age on e-learning acceptance in England: A structural equation modeling approach for an extended technology acceptance model. *Educational Computing Research*, 51(2), 163-184.

214. Tarhini, A., El-Masri, M., Ali, M. And Serrano, A. (2016), "Extending the UTAUT model to understand the customers' acceptance and use of internet banking

in Lebanon: A structural equation modeling approach", Information Technology & People, Vol. 29 No. 4, pp. 830-849. Https://doi.org/10.1108/ITP-02-2014-0034

215. Taylor, S., & Todd, P., A. (1995). Understanding information technology usage: A test of competing models. Information Systems Research, 6(2), 144-176.

216. Teka, B. M. (2020). Factors affecting bank customers usage of electronic banking in Ethiopia: Application of structural equation modeling (SEM). Cogent Economics & Finance, 8(1). Doi:10.1080/23322039.2020.1762285

217. Telematics and Informatics, 32, 120-142. Doi:10.1016/j.tele.2014.05.003

218. TES. (2015) Banking and Finance services: Algerian banks readying new electronic payment processing systems. London, UK: Oxford Business Group.

219. Venkatesh, V. & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. Decision Sciences, 39(2), 273-315.

220. Venkatesh, V. & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. Management Science, 46(2), 86-204.

221. Venkatesh, V. And Speier, C., and Morris, M. (2002) User Acceptance in Individual Decision Making About Technology: Toward an Integrated Model. *Decision Science*, 33 (2) 297-316.

222. Venkatesh, V., Davis, G.B., Davis, F.D. & Morris, M.G. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 25–478.

223. Venkatesh, V., Morris, M. (2000) Why Don't Men Ever Stop to Ask for Directions? Gender, Social Influences, and Their Role in Technology Acceptance and Usage Behaviour. *MIS Quarterly,* 24(1) 115-139.

224. Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly, 36, 157-178

225. Von Stetten A, Wild U, and Chrennikow W (2011) Adopting Social Network Sites-The Role of Individual IT Culture and Privacy Concerns. In Proceedings of the 17th Americas Conference on Information Systems.

226. Walsh I (2009) Development of an Instrument to Assess Individual IT Culture. Proceedings of the Fifteenth Americas Conference on Information Systems. San Francisco, California August, Paper 769.

227. Walsh I (2010) Investigating the Cultural Dimension of IT-Usage: IT-Acculturation, an Essential Construct in IS Research. Thirty First International Conference on Information Systems, St. Louis.

228. Walsh I (2014) A strategic path to study IT use through users' IT culture and IT needs: A mixed-method grounded theory. Journal of Strategic Information Systems. 23: 146–173.

229. Walsh I, Kefi H (2008) Developing the Concept of Individual IT-Culture: The Spinning Top Metaphor Americas Conference on Information Systems. Toronto, ON, Canada August 14th-17th 2008

230. Walsh I., Kefi H., Baskerville R., (2010) Managing culture creep: Toward a strategic model of user IT culture, Journal of Strategic Information Systems 19 257–280, DOI: 10.1016/j.jsis.2010.09.002.

231. Walsh, I. (2020). A combined variance and process perspective on IT culture and IT usage leading to the concept of IT acculturation. Systèmes d'information & management, 25, 33-72. Https://doi.org/10.3917/sim.202.0033

232. Walsh, I., and Gettler Summa, M. (2010). Users' groups interpreted through the lens of the users' needs and motivation. Actes du Congrès de l'Association Information & Management (AIM).

233. Wan, W., Luk, C., and Chow, W. (2005) Customers' adoption of banking channels in Hong Kong. *International Journal of bank marketing*, 23 (3) 255-272.

234. Wang, Y.S., Wu, M.C. & Wang, H.Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. *British Journal of Educational Technology*, 40(1):92-118.

235. Ward Jr, J. H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American statistical association*, *58*(301), 236-244.

236. Wong, K. K.-K. (2019). *Mastering partial least squares structural equation modeling (PLSSEM) with Smartpls in 38 hours*: iuniverse.

237. Xue, M., Hitt, L. M., & Chen, P. (2011). Determinants and Outcomes of Internet Banking Adoption. Management Science, 57(2), 291–307. Doi:10.1287/mnsc.1100.1187

238. Yakubiv, V., Sodoma, R., Hrytsyna, O., Pavlikha, N., Shmatkovska, T., Tsymbaliuk, I., ... & Brodska, I. (2019). Development of electronic banking: a case study of Ukraine. *Entrepreneurship and Sustainability Issues*, *7*(1), 219.

239. Yaseen, S. G., & El Qirem, I. A. (2018). Intention to use e-banking services in the Jordanian commercial banks. International Journal of Bank Marketing, 36, 557-571. Doi:10.1108/IJBM.5.2017.0082

240. Yiu CS, Grant K, Edgar D (2007) Factors affecting the adoption of Internet Banking in Hong Kong-- implications for the banking sector. International Journal of Information Management. 27(5): 336-351. Https://doi.org/10.1016/j.ijinfomgt.2007.03.002.

241. Yoo, B. And Shin, G.-C. (2017), "Invariant effect of individual cultural orientations: an application of CVSCALE", International Marketing Review, Vol. 34 No. 6, pp. 735-759. Https://doi.org/10.1108/IMR-03-2015-0055

242. Yoo, B., Donthu, N. And Lenartowicz, T. (2011), "Measuring Hofstede's five dimensions of cultural values at the individual level: development and validation of CVSCALE", Journal of International Consumer Marketing, Vol. 23 Nos 3-4, pp. 193-210.

243. Yousafzai SY, Foxall GR, Pallister JG (2010) Explaining Internet Banking Behavior: Theory of Reasoned Action, Theory of Planned Behavior, or Technology Acceptance Model. J. Appl. Soc. Psychol. 40 (5): 1172–1202. Https://doi.org/10.1111/j.1559-1816.2010.00615.x.

244. Yu, Y., & Choi, Y. (2016). Stakeholder pressure and CSR adoption: The mediating role of organizational culture for Chinese companies. The Social Science Journal, 53(2), 226–235. Doi:10.1016/j.soscij.2014.07.006

245. Zerhouni, A. B. (2016). Investigating the factors influencing banks' adoption and development of e-banking, the case of Algeria (Doctoral dissertation, Brunel University London).

246. Zhang, Y., Weng, Q., & Zhu, N. (2018). The relationships between electronic banking adoption and its antecedents: A meta-analytic study of the role of national culture. International Journal of Information Management, 40, 76–87. Doi:10.1016/j.ijinfomgt.2018.01.015.

247. Zhao, Y., Ni, Q. & Zhou, R. (2018). What factors influence the mobile health service adoption? A meta-analysis and the moderating role of age. *International* Journal of Information Management, 43, 342-350.

Appendices

Questionnaire (English copy)

University Centre of Maghnia

Institute of economics commerce and management sciences

A research project for the award of the Doctor of Economic Sciences degree

Initiated

" The impact of individual IT culture on e-banking adoption by banks' customers: The Algerian's experience "

Dear Madam/Sir

We kindly request that you contribute to the completion and success of this study by filling out this questionnaire. My research project aims to investigate the impact of individual IT culture on e-banking adoption by Algerian banks' customers. It is highly anticipated that the analysis of this questionnaire will contribute significantly to my research, which falls within the framework of obtaining a Doctor of Economics Sciences. Your responses will be anonymous and confidential and used only for the purpose of this study.

Thank you very much.

Sincerely,

Latreche Hela, phd student, centre university of Maghnia, Email: hala.latreche@gmail.com

Supervisor, Dr. Bellahcene Mohammed, Lecturer Professor at centre university of Maghnia, Email: bellahcene_mohammed@yahoo.fr.

Co-Supervisor, Pr. Vincent Dutot, Full Professor MIS, IPAG Business School.

1. **Gender** □ Male □Female
2. **Age** □18-28 years □29-39 years □40-50 years
   □51-61 years □+ 61 years
3. **Education Level** □No studies □Primary □ Secondary school
   □High school □University
4. **Job** □Employees □Technician □Senior technician
   □Managers □Senior manager's □Other

5. **What is your bank? ……**

E-banking definition:

E-banking includes the provision of retail and small value banking products and services through electronic channels as well as large value electronic payments and other wholesale banking services delivered electronically.

E-banking Use

USE1: Do you use e-banking: □ No □ A little □ From time to time □ Usually □ A lot.

USE2: Do you use the available e-banking services: □ No □ A little □ some □ The majority □ All.

USE3: Do you use the e-banking system in your banking transactions: □ No □ A little □ Some □ The majority □ All.

Perceived Ease of Use					
1. My interaction with the e-banking system is clear and understandable					
2. Interacting with the e-banking system does not require a lot of my mental effort					
3. I find the e-banking system to be easy to use.					
4. Learning to operate the e-banking system would be easy for me					
5. I find it easy to get the e-banking system to do what I want it to do					
Perceived Usefulness					
6. I would find the system useful in my daily transactions.					
7. Using the system would enable me to					

accomplish my financial transactions more quickly.					
8. Using The system would make it easier to do my financial transactions.					
Social Influence					
9. I use the e-banking system because of the proportion of coworkers who use the system					
10. I use the e-banking system because People in my organization who use the system have more prestige than those who do not					
11. I use the e-banking system because People in my organization who use the system have a high profile.					
Facilitating Conditions					
12. Guidance was available to me in the selection of the e-banking system.					
13. A specific person (or group) is available for assistance with e-banking system difficulties					
14. Specialized instruction concerning the e-banking is available to me.					
Attitude Toward Behavior					
15. Using The e-banking system is a good idea					
16. Using The e-banking system is a foolish					
17. Using The e-banking system is pleasant					
Behavioral Intention					
18. Assuming I had access to the e-banking system, I intend to use it					
19. Given that I had access to the e-banking system, I predict that I would use it					
20. I plan to use the e-banking system in the next <n> months.					
IITC_Self accomplishment needs satisfied through the usage of IT					
21. I get satisfaction from improving my mastery of the software I use					
22. I like learning to use new software which could be useful to me					
23. I get satisfaction from mastering software that I use					
24. I like the feeling of being completely engrossed in new software					
IITC_Extrinsic motivation to use IT through external regulation					
25. I am obliged to use IT but it is tiresome for me					
26. I don’t like computers but I am obliged to					

use them					
27. I only use a computer because the work I have to do obliges me to do so.					
28. Using a computer is a constraint for me					
IITC_Power needs satisfied through the usage of IT					
29. I use IT because that allows me to be better considered by the people I know.					
30. To be good with IT makes me more important with my entourage and I like that					
31. Being good with computers gives me a feeling of superiority					
32. I get involved with computers because I want to be more highly valued by certain people.					
IITC_Affiliation needs satisfied through the usage of IT					
33. Having a computer allows me to keep in touch with my work group and/or with certain people in my entourage					
34. I need a computer to work and/or to communicate					
35. Using a computer allows me to exchange with my work colleagues and/or the people I like.					
IITC_Primary needs satisfied through the usage of IT					
36. When I am using my computer, I often don't recognize how fast time goes by.					
37. When I am using my computer, I don’t notice the time going by and I have difficulty tearing myself away.					
38. I have trouble controlling the time I spend on my computer.					
IITC_Intrinsic motivation to know through IT					
39. I like discovering new software					
40. I like computers.					
41. I find some aspects of IT, entertaining.					
IITC_Extrinsic motivation to use IT through identified regulation					
42. Using a computer improves the quality of my work.					
43. A computer is a work tool which allows me to be more productive and I think one should use this tool if one wants to be efficient.					
44. I must use a computer if I want to do my work properly					
45. IT is a tool which allows me to undertake some tasks which I consider important					

Questionnaire (Arabic copy)

المركز الجامعي مغنية

معهد العلوم الاقتصادية والعلوم التجارية وعلوم التسيير

قسم العلوم الاقتصادية

مشروع بحث تخرج

لنيل شهادة الدكتوراه في العلوم الاقتصادية

تحت عنوان:

" The impact of individual IT culture on e-banking adoption by banks' customers: The Algerian's experience "

سيدّي/ سيدّتي؛

تحية طيبة وبعد؛

نرجو من سيادتكم أن تساهموا في اتمام وانجاح هذه الدراسة من خلال ملئ هذا الاستبيان. تهدف هذه الدراسة إلى التعرف على أثر ثقافة تكنولوجيا المعلومات الفردية على تبني البنوك الالكترونية من طرف زبائن البنوك الجزائرية، ومن المتوقع أن يساهم تحليل هذا الاستبيان بشكل كبير في بحثي الذي يدخل في إطار الحصول على شهادة دكتوراه في العلوم الاقتصادية. كل المعلومات المحصلة في هذه الدراسة ستظل سرية ولن تستعمل إلا لأغراض علمية.

أرجو منكم أن تتقبلوا سيّدي/ سيّدتي فائق تشكرات فريق البحث الواردة أسماهم أدناه:

لطرش هالة، طالبة دكتوراه، المركز الجامعي مغنية، البريد الالكتروني: hala.latreche@gmail.com.

المشرف الدكتور بلحسن محمّد، أستاذ محاضر، المركز الجامعي مغنية، البريد الالكتروني: bellahcene_mohammed@yahoo.fr.

مشرف مساعد: البروفسور Vincent Dutot، مدرسة التجارة والإدارة، فرنسا.

المعلومات الشخصية:

1.الجنس: ☐ رجل ☐ امرأة

2.السن:

☐ من18 إلى 28سنة ☐ من 29 إلى 39سنة ☐ من 40 إلى 50 سنة

☐ من 51 إلى 61سن ☐ أكثر من 61 سنة

3.المستوى التعليمي (يمكن الاشارة إلى أكثر من اختيار)

☐ ليس لدي شهادة ☐ ابتدائي ☐ متوسط ☐ ثانوي ☐ جامعي

4.ما طبيعة العمل الذي تمارسونه؟

☐ اطار سامي ☐ اطار ☐ تقني سامي ☐ تقني ☐ عامل انجاز ☐ آخر:

.....

5.ما هو البنك الذي تتعاملون معه؟

.....

شرح لمفهوم البنوك الالكترونية E-Banking

نقصد بالبنوك الالكترونية النظام الذي يمكّن الزبون من إدارة حساباته البنكية والتعامل بها من خلال حاسوبه الشخصي أو هاتفه المحمول أو قنوات التوزيع الالكترونية (آلات الصرف الآلي، نقاط البيع الالكترونية ...). في هذا النظام، يجري الزبون العمليات البنكية باستخدام رقم سري يمكنه من الدخول إلى حسابه أو بطاقات الدفع الالكترونية (البطاقة البنكية).

الاستخدام الفعلي

1.أنت:

☐ لا تستخدم نظام البنوك الالكترونية ☐ نادرا ما تستخدم نظام البنوك الالكترونية

☐ تستخدم نظام البنوك الالكترونية من وقت لآخر ☐ عادة ما تستخدم نظام البنوك الالكترونية

☐ كثيرا ما تستخدم نظام البنوك الالكترونية

2.أنت

☐ لا تستخدم الخدمات البنكية الالكترونية المتاحة ☐ تستخدم القليل من الخدمات البنكية الالكترونية المتاحة

☐ تستخدم بعض الخدمات البنكية الالكترونية المتاحة ☐ تستخدم غالبية الخدمات البنكية الالكترونية المتاحة

☐ تستخدم كل الخدمات البنكية الالكترونية المتاحة

3.**أنت**

□لا تستخدم نظام البنوك الالكترونية في تعاملاتك البنكية □ تستخدم نظام البنوك الالكترونية في القليل من تعاملاتك البنكية

□ تستخدم نظام البنوك الالكترونية في بعض تعاملاتك البنكية □ تستخدم نظام البنوك الالكترونية في غالبية تعاملاتك البنكية

□ تستخدم نظام البنوك الالكترونية في كل تعاملاتك البنكية

7. أجب على الأسئلة التالية بوضع علامة X في الخانة التي تراها مناسبة.

	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
سهولة الاستخدام المتوقعة					
1.التعامل بنظام البنوك الالكترونية واضح ومفهوم					
2.التعامل بنظام البنوك الالكترونية لا يتطلب مني مجهودا فكريا كبيرا					
3.أجد أن نظام البنوك الالكترونية سهل الاستخدام					
4.انجاز التعاملات التي أرغب بها بواسطة نظام البنوك الالكترونية سهل					
5.أجد أن نظام البنوك الالكترونية مرن، عند إجراء تعاملاتي البنكية به					
المنفعة المتوقعة					
6.أجد أن نظام البنوك الالكترونية مفيد في تعاملاتي اليومية					
7.استخدام نظام البنوك الالكترونية يمكنني من إنهاء تعاملاتي التجارية والمالية بسرعة أكبر					
8.استخدام نظام البنوك الالكترونية من شأنه أن يسهل تعاملاتي التجارية والمالية					
التأثير الاجتماعي					
9. أستخدم نظام البنوك الالكترونية نظرا لنسبة زملاء العمل الذين يستخدمون النظام.					
10. أستخدم نظام البنوك الالكترونية بسبب أن الأفراد الذين يستخدمون النظام من حولي لديهم مكانة أكثر من الذين لا يستخدمونه					
11. أستخدم نظام البنوك الالكترونية بسبب أن الأفراد الذين يستخدمون النظام من حولي لديهم وضعية عالية					
العوامل المسهلة					
12.التوجيهات المتعلقة باختيار نظام البنوك الالكترونية متوفرة					
13.يوجد شخص معين أو مجموعة معينة لمساعدتي عند مواجهتي لصعوبات في استخدام نظام البنوك الالكترونية.					
14.لدي الموارد اللازمة لاستخدام نظام البنوك الالكترونية					
الموقف اتجاه السلوك					
15.استخدام نظام البنوك الالكترونية فكرة جيدة					

16.استخدام نظام البنوك الالكترونية فكرة حكيمة					
17.استخدام نظام البنوك الالكترونية أمر جيد					
نية الاستخدام					
18.أعتزم (أنوي) استخدام نظام البنوك الالكترونية إذا كان متاحا (متوفرا)					
19.أتوقع استخدام نظام البنوك الالكترونية إذا كان متاحا (متوفرا)					
20.أخطط لاستخدام نظام البنوك الالكترونية في الأشهر القادمة					
استخدام تكنولوجيا المعلومات من أجل تلبية احتياجات تحقيق الذات					
21.أحصل على الرضا من خلال تحسن مستوى تحكمي في البرمجيات التي استخدمها.					
22.أحب تعلم كيفية استخدام البرمجيات الجديدة التي يمكن أن تكون مفيدة لي					
23.أحصل على الرضى من خلال تحكمي في البرمجيات التي استخدمها					
24.أحب أن أشعر بأنني منشغل تماما بالبرمجيات الجديدة					
استخدام تكنولوجيا المعلومات من أجل الدافع الخارجي من خلال التنظيم الخارجي					
25.أنا مضطر لاستخدام تكنولوجيا المعلومات لكنها مملة بالنسبة لي					
26.لا أحب أجهزة الكومبيوتر لكني مضطر لاستخدامها					
27.أستخدم أجهزة الكومبيوتر فقط لأن عملي يفرض علي ذلك					
28.استخدام الحاسوب هو قيد بالنسبة لي					
استخدام تكنولوجيا المعلومات من أجل تلبية وارضاء احتياجات القوة					
29.أستخدم تكنولوجيا المعلومات لأنها تسمح لي بأن أحصل على اعتراف وتقدير أكبر من طرف الاشخاص الذين أعرفهم .					
30.أن أكون جيدا في استخدام تكنولوجيا المعلومات يكسبني أهمية أكبر في محيطي وانا أحب هذا.					
31.أن أكون جيدا في استخدام أجهزة الكومبيوتر يمنحني شعورا بالتفوق					
32.ألتزم باستعمال الحاسوب وأشارك في ذلك لأني أريد أن أكون أكثر قيمة في نظر بعض الأشخاص					
استخدام تكنولوجيا المعلومات من أجل ارضاء وتلبية احتياجات الانتماء					
33.امتلاك الحاسوب يسمح لي بالبقاء على اتصال مع فريق العمل الخاص بي أو مع بعض الاشخاص في محيطي					
34.أحتاج للحاسوب في العمل وفي التواصل.					
35.استخدام الحاسوب يسمح لي بالتبادل مع زملائي في العمل أو مع الأشخاص الذين أحبهم					
استخدام تكنولوجيا المعلومات من أجل تلبية الحاجات الأولية					

36.عندما استخدم حاسوبي غالبا ما لا أعرف كيف مرّ الوقت بسرعة.					
37.عندما استخدم حاسوبي لا ألاحظ مرور الوقت وأجد صعوبة في الابتعاد عنه (أي عن الحاسوب)					
38.لدي مشكلة في التحكم في الوقت الذي اقضيه على حاسوبي.					
استخدام تكنولوجيا المعلومات من أجل الدافع الداخلي للمعرفة					
39.أحب اكتشاف البرمجيات الجديدة					
40.أحب أجهزة الحاسوب					
41.أجد بعض جوانب استخدام تكنولوجيا المعلومات مسلية (ترفيهية)					
استخدام تكنولوجيا المعلومات من أجل الدافع الخارجي من خلال التنظيم المحدد					
42.استخدام الحاسوب يحسن من جودة عملي					
43.الحاسوب أداة عمل تسمح لي بزيادة انتاجيتي واعتقد أنه يجب استخدام هذه الأداة إذا كان الفرد يريد أن يكون فعّالا أكثر					
44.يجب علي استخدام الحاسوب إذا أردت انجاز عملي بشكل صحيح					
45.تكنولوجيا المعلومات أداة تسمح لي بالقيام ببعض المهام التي أعتبرها مهمة					

Abstract
Although previous studies have confirmed the importance of e-banking services for both banks and customers, the level of such service adoption in Algeria is still low. This study aims to examine the impact of individual information technology culture (IITC) on e-banking adoption and use in Algeria and investigate the relationship between IT culture archetype and perceived ease of use and perceived usefulness of e-banking. A three-phase approach was adopted to investigate the research objectives. First, a theoretical framework based on the technology acceptance model, the unified theory of the acceptance and use of technology, and the spinning top model were investigated. To test the related hypotheses, a survey (n = 360) was conducted on Algerian bank customers, and the data were analyzed using PLS structural equation modeling. The findings reveal that IITC is an antecedent of perceived usefulness and perceived ease of use. They also highlight that perceived usefulness and perceived ease of use have positive and significant effects on attitude toward e-banking use, which in turn influences behavioral intention. Moreover, facilitating conditions and behavioral intention significantly influence e-banking adoption and use. Finally, age is identified as a critical control variable in Algeria. To achieve the second research objective, a multivariate cluster analysis technique was applied to cluster the dataset collected through the survey, and a multiple regression analysis with dummy variables was performed. The results indicate that the perceived ease of use and perceived usefulness beliefs of e-banking are sensitive to the different IT culture archetypes exhibited by customers. Overall, the results shed light on the factors that can influence the adoption of e-banking by Algerian consumers, offering explicit benefits for the banking industry in their quest to improve their online services and their customers' satisfaction.
Keywords: E-banking, individual information technology culture, IT cultural archetypes, Algeria, spinning top model.
Résumé:
Bien que des études antérieures aient confirmé l'importance des services d'e-banking pour les banques et les clients, le niveau d'adoption de ces services en Algérie est encore faible. L'objectif de cette recherche consiste à investiguer l'impact de la culture individuelle des technologies de l'information (IITC) sur l'adoption et l'utilisation d'e-banking en Algérie ; et d'étudier la relation entretenues par les archétypes de la culture des technologies de l'information des clients des banques algériennes et la facilité d'utilisation perçue et l'utilité perçue de l'e-banking. Une approche en trois phases a été adoptée pour réaliser les objectifs de recherche. Au début, un modèle théoriquea été developpé à partir du modèle d'acceptation de la technologie, de théorie unifiée de l'acceptation et de l'utilisation de la technologie et de modèle de la toupie. Afin de tester ce modèle, une modélisation d'équations structurelles par l'approche PLS a été réalisée sur les données de 360 questionnaires remplis par les clients de banques algériennes. Les résultats ont montré que l'iitc est un antécédent de l'utilité perçue et de facilité d'utilisation perçue des services d'ebanking, et que l'attitude envers l'utilisation est déterminée par l'utilité perçue et la facilité d'utilisation perçue, et que l'intention d'utilisation est affectée par l'attitude envers l'utilisation. De plus, les résultats ont montré que l'utilisation des systèmes d'e-banking en Algérie est influencée par l'intention d'utilisation et les facteurs facilitantes. Enfin, l'âge est identifié comme une variable de contrôle critique en Algérie. Pour atteindre le deuxième objectif, une technique d'analyse de grappes multivariée a été appliquée pour identifier les archétypes de la culture des technologies de l'information aux quels apartiennent les différents clients bancaires interviewés ; puis une analyse de régression multiple avec des variables fictives a été effectuée. Les résultats indiquent que la facilité d'utilisation perçue et l'utilité perçue de l'e-banking sont sensibles aux différents archétypes de IITC présentés par les clients. Dans l'ensemble, les résultats ont mis en lumière les facteurs qui peuvent influencer l'adoption de l'e-banking par les consommateurs algériens, offrant des avantages explicites pour le secteur bancaire dans sa quête d'amélioration de ses services en ligne et de la satisfaction de ses clients.

Mots clés : E-banking, culture individuelle des technologies de l'information, archétypes culturels, Algérie, modèle de toupie.

الملخص:
بالرغم من أن الدراسات السابقة قد أكدت على أهمية البنوك الالكترونية لكل من البنوك والزبائن، إلا أن مستوى تبنيها في الجزائر لا يزال منخفضًا. من هذا المنطلق، تهدف هذه الدراسة إلى تحديد أثر ثقافة تكنولوجيا المعلومات الفردية على تبني واستخدام البنوك الإلكترونية في الجزائر، ودراسة العلاقة بين النماذج الأصلية لثقافة تكنولوجيا المعلومات وسهولة الاستخدام المدركة والفائدة المدركة من البنوك الإلكترونية. تم اعتماد نهج من ثلاثة مراحل لدراسة أهداف البحث. أولا، تم تطوير نموذج نظري بالاعتماد على نموذج قبول التكنولوجيا، النظرية الموحدة لقبول واستخدام التكنولوجيا، ونموذج اللولب الدوار. من أجل اختبار هذا النموذج، تم تحليل بيانات 360 استبانة وزعت على زبائن البنوك الجزائرية باستخدام النمذجة بالمعادلة الهيكلية القائمة على طريقة المربعات الصغرى الجزئية. بينت النتائج أن ثقافة تكنولوجيا المعلومات الفردية هي محدد للفائدة المدركة وسهولة استخدام البنوك الإلكترونية، وأن الفائدة المدركة وسهولة الاستخدام المدركة لها تأثيرات إيجابية ومعنوية على الموقف اتجاه استخدام البنوك الإلكترونية ، والذي بدوره يؤثر على النية السلوكية. تبين كذلك أن العوامل المسهلة والنية السلوكية تؤثر بشكل كبير على تبني واستخدام البنوك الإلكترونية. أخيرًا ، تم تحديد العمر كمتغير ظابط (تحكم) بالغ الأهمية في الجزائر. من أجل بلوغ الهدف الثاني من البحث، تم تطبيق تقنية التحليل العنقودي متعدد المتغيرات لتصنيف الزبائن المستجوبين حسب أنماط ثقافة تكنولوجيا المعلومات التي ينتمون إليها، ثم استخدام تحليل الانحدار المتعدد مع المتغيرات الوهمية. تشير النتائج إلى أن معتقدات سهولة الاستخدام المدركة والفائدة المدركة المتعلقة بالبنوك الإلكترونية حساسة لأنماط ثقافة تكنولوجيا المعلومات المختلفة المميزة الزبائن. بشكل عام، سلطت النتائج الضوء على العوامل التي يمكن أن تؤثر على تبني المستهلكين الجزائريين للبنوك الإلكترونية، مما يوفر مزايا واضحة ل مؤسسات القطاع البنكي في سعيها لتحسين خدماتها عبر الإنترنت ورضا عملائها.

الكلمات المفتاحية: البنوك الالكترونية، ثقافة تكنولوجيا المعلومات الفردية، النماذج الأصلية لثقافة تكنولوجيا المعلومات، الجزائر، نموذج اللولب الدوار.